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[*For continuation of "Analysis of Advertisements" see page lxxxix.*]

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THE BUILDER

A JOURNAL FOR THE ARCHITECT AND CONSTRUCTOR.

WITH WHICH IS INCORPORATED "THE BRITISH ARCHITECT."

VOL. CXXV.—No. 4208. SEPTEMBER 28, 1923

HEATING AND VENTILATION.

ABOUT half our British year is cold enough to make artificial warmth in dwellings and workplaces distinctly desirable if not absolutely essential to health and efficiency, and with the return of shorter days and lower temperatures the subject of heating and heating appliances again claims attention. No absolute decision as to the best method of heating and ventilating buildings is ever arrived at, however, for our climate, though extremely variable, is not severe enough to provide the stimulus needed to drive all parties among a people of such strongly individualist character as the British to any general agreement on the subject.

The most conclusive demonstration of the fitness and working economy of any special apparatus is liable to count for little where it is possible to drift along in the old way and be comforted with the reflection that after all "the open fire looks the most cheerful." And so it is that the open fire remains the most usual form of heating and ventilating appliance in use in these islands.

Considerations of economy and the desirability of minimising the nuisance caused by soot and smoke may eventually lead to the amendment or the suppression of open fires, but since they have managed to outlast the coal shortage caused by the war, when so much governmental interference with private affairs was tolerated by the restive but patriotic householder, there seems small chance of their speedy abolition.

Fashions are capricious, however, and England may fasten her affections upon central heating now that America is showing signs of getting weary of it, for, after having given it a long and enthusiastic trial, medical men in America are condemning warmed air methods of ventilation as being productive of lassitude and loss of energy. That this is the case most travellers seem to agree, but it is too early yet to pronounce a final verdict, and many Americans are still fond of their steam and hot-water systems as well as of their hot-air furnaces and defend them by pointing out that they modify the rigours of their winter as the open fire could not.

Whatever disadvantages central heating may have, and if puffy eyes and sallow cheeks are to be charged to its discredit they are not to be disregarded, it has the merit of reducing the belching out of foul smoke which disfigures architecture and furniture with constantly renewed coatings of grime. This is an important consideration, for though London suffers somewhat less than the great manufacturing cities of the Midlands and the North where conditions are appalling, and though she is saved some discomfort through the fact that the prevailing winds blow from the residential districts towards the factories on the north and east of the city, even in London soot has to be reckoned with as taking a prominent part, even if it does not set the key of every architectural colour scheme. It is high time that this disgusting and ridiculous state of things should be done away with in the interests both of hygiene and of artistic propriety.

The discharge of smoke in large quantities is a double defect of the open fire, since the particles of unconsumed fuel which pollute the atmosphere are lost to heat production. Certain forms of slow-combustion grate have proved their superior power of transforming fuel into useful heat, but their excellent qualities are not sufficiently recognised to obtain for them exclusive use in the face of competition of slightly less expensive grates or of grates which may be somewhat simpler of installation. Failing personal experience, there is little to guide the architect in the matter, and choice is too often directed towards the selection of a pleasant-looking "surround" than determined by keen scientific inquiry into the positive working efficiency of the grate considered as a heating apparatus. So little do some architects who select grates or some manufacturers who produce them consider the actual conditions of their service that among the many types of interiors on the market few indeed are fitted with ash-pans which collect all the ashes and allow of their removal without recourse to the use of dustpan and hearth-brush. Since some manufacturers have realised this simple and obvious requirement of a heating apparatus depending upon the combustion of coal there seems to be no reason why others should not follow suit, though as the present ill-fitting types of ash-pan find a ready sale the alteration may have to wait for woman to make her voice heard in connection with architectural fittings.

Some conscientious architects, horrified at the magnitude of the nuisance created by coal smoke, advocate a return to the use of wood fires in cities, and have had special hearths for burning wood installed in their own offices by way of making example square with precept. The results are delightful in appearance, and good heat can be maintained, but the reasons which led to the substitution of coal for wood as fuel some centuries back probably apply with even greater force to-day, now that so much of our small remaining forest has been felled, and the substitution of wood for coal is not likely to become general.

As a ventilating appliance the open fire has a distinct value, as is recognised in the by-law which requires ventilating gratings to be provided in rooms built without chimneys and, fortunately, the chimney that is placed in a suitable position for the avoidance of draughts from door and window is also the one that draws best without emitting smoke in whirls and gusts into the room. The demand for special installations of radiators or other types of heating is greatly increased by the careless planning and detailing so often met with in ordinary dwelling houses, for a good slow-combustion grate, well placed in relation to windows, provided with means of ventilation six feet above floor level, can maintain a comfortable state of warmth on a cold day in a way that would be quite impossible with an inferior fireplace indifferently placed in regard to doors and windows, especially if the only means of ventilation are provided low down by side-hung casements or French doors.

Gas fires provided with flues of much smaller sectional area than those used for coal fires and of restricted height have been installed in many houses built recently, with the object of reducing both the first cost in construction and of future labour in running the house. These two points are undoubtedly worthy of consideration, but care should be exercised to see that the flue has efficient updraught, or the poisonous fumes may be discharged into the room with tragic results, such as are so frequently reported in the daily newspapers.

In conjunction with gas stoves for cooking and heating, an independent boiler is often employed to perform a certain amount of heating work and to supply hot water for domestic purposes. The boiler is generally fired with coke or coke-and-coal mixture, and the heating functions are performed by means of a circuit of pipes and radiators supplied from a hot-water cylinder. It is claimed for this method that it is more economical both in fuel and in labour than a boiler affixed to the kitchen range, but the rival merits are pretty nearly balanced since, with the use of both boiler and gas stove, two objects have to be attended to and cleaned instead of one; and special fuel has to be stored for heating the boiler. The old-fashioned kitchen range is supposed to be under a cloud at the moment, but cooking by gas on a Sunday, when all the neighbours are attempting to do the same, and the pressure is not adequately maintained, can also be vexatious. Every housewife has her own opinion as to which alternative is the worse.

Electricity as a heating agent is not yet a practical proposition, not because excellent and efficient stoves have not been made, but because electricity when made in our muddle-headed and wasteful English way is far too precious for the purpose. "Backward" countries like Spain can light the peasant's hut and even the gipsy's cave with electricity by harnessing the natural water power of quite small brooks, whereas we make electricity by first burning some other fuel, such as coal, and incidentally provide the landscape with handsome factory chimneys to discharge the smoke!

NOTES.

Influence of the Church Congress.

IF dual Presidents are any criterion, this year's Church Congress at Plymouth is an important one. The subject matter generally seems to avoid controversy, even though it fails to include certain important points in the application of Christianity to modern thought and education, industry, business and civic life. To comprehend the scope of religion without a deeper understanding of the nature of art, or to appreciate the particular dangers in the conduct of industry divorced from it, is to expect the impossible, and yet we hardly suppose the subject of art, and the need of beauty, exercises much influence over the discussions. But the subject is one deeply exercising the minds of people at the present time, and there are, no doubt, among the clergy those who feel the importance of it, so that in considering the influence of the Church Congress we are bound to look at this side of the matter; and if the importance of beauty as the expression almost of the religious life of a people is disregarded, we must hope future Congresses will realise that it should no longer be neglected.

Celtic Cross at Termonfechin Church.

The New and the Old.

WE have each year a Church Congress Exhibition, including a loan collection of ancient and historical examples and an exhibition of modern work. It is always easy to criticise one at the expense of the other, to point to the beauty of the old work and to make unfavourable comparisons with the new. There is a quality in mere age which influences us, and this must be discounted. But there is a difference no less between the new and the old, perhaps as much due as anything else to the industrial era, to the new directions and purposes in our labour, and the new kinds of reward sought for it. A much more humble attitude towards the reward for labour existed in old days because there lay so much reward in the work itself. Nor is it only the machine that has made the difference. We ourselves have become so mechanically minded as to be but part of a greater machine.

"World Price."

THERE are one or two passages in Mr. P. J. Pybus's article in *The Times* of the 21st instant, in which he replies to critics of his former articles on "Payment by Results," which have a wider application than to any particular system, but which bear on the conditions of the trade of this country generally, whatever may be the system adopted, and they deserve special attention as they are admirably expressed. We venture to quote one or two passages. Thus Mr. Pybus states: "What is the one fundamental fact which British industry has to face? It is that for the greater part of our products there is a maximum attainable world price, subject to slight variations for quality, but otherwise determined by factors beyond our control. If we have prospered in the past it is because we have produced goods not inferior in quality at a price not higher than the world price. If we are to prosper in the future, if we are even to survive as an industrial nation, it can only be on the same condition. We may discuss the need for benevolence or the virtues of profit sharing till the heavens fall, but we cannot thereby create any immunity from the constant pressure of that limiting fact, or ensure that those who can see it in a false perspective will have any profits to share." This has been the text we have been preaching from for many years, but Mr. Pybus has stated the text and the sermon in a nutshell. We are parochial in industrial affairs, and act as though we were free to handicap our industries in every way by local considerations, and yet think that trade will be secured. It is necessary that legislators, local authorities, employers, employed, and trade unions should recognise the truth thus expressed by Mr. Pybus, that the first necessity is to consider the world price and then to regulate our industrial conditions accordingly. There are other passages worth considering in this article. For instance, Mr. Pybus states: "I believe that in normal times it would be true to say that a decrease in the cost of a product represented by quite a small percentage would very greatly increase this country's share of the world's work."

Piece-Work and Tools.

ONE other passage in this article on another point seems worthy of attention as being suggestive to employers. Mr. Pybus says: "I remember the introduction of piece-work in a large engineering factory, and on the morning on which it was started there was an overwhelming demand for new cutting tools, for the overhaul of lathes, and a general grumbling about the condition of the plant on which the workmen had operated for years without complaint. Up to that time it was the employer's business to see that every modern device was employed, but when the workman started for himself he wanted everything which could produce accurately and quickly." This country stands in a critical condition as to its trade, but all thinking people must recognise three of the essentials to secure the world's trade: Excellent quality, increased production and freedom from vexatious restrictions and impracticable burdens. How are these three essentials to be secured? Three things, at any rate, are clear: (1) A system of employment which will make the workman give of his best and not strive to limit output, (2) suitable reward for his labour, energies and capacity, and (3) the best possible plant to work with.

Daylight Saving.

A GOOD deal of discontent is being shown at the early discontinuance of "Summer Time" this year under the new Act, but people will ruin their own cause if they are so extreme as to advocate both an extension of the time advanced to two hours and the commencement of Summer Time at an earlier date, as well as its continuance to a later date. It must be remembered that "daylight saving" was to a large extent an economic measure, and its economic effect in saving light is most marked in the Autumn. Since its introduction Summer Time has only ter-

War Memorial, Vienne. M. GRANGE, Sculptor. M. FORETT, Architect.
[This memorial was recently unveiled by General Petain.]

minated once so early as this year, as in 1917 it terminated on September 17, and we think as the Act is one which has to be renewed each year a good case could be made out for the extension of Summer Time, at any rate until the end of September. Probably the date adopted in the Act for its commencement is quite satisfactory, "the day following the third Saturday in April," which this year was April 22, but after the experience of this year few people will be found to advocate the unnecessary change so early as September 16. It is true under the Act it is possible the date may work out six days later than it did this year, but any date before September 30 is too early.

St. Bartholomew the Great.

THE completion of the excavations in the cloisters of this church, the oldest church in London, is a step further towards its complete restoration, nothing now remaining but to restore the vaulting of the East Cloister, for which the sum of about £4,000 is needed. We hope this sum may be soon forthcoming to crown an effort which has been continued for the last thirty-eight years, and has led to the recovery of a church of the twelfth century, dating, as it does, from 1123. It is thus older than Westminster Abbey. An interesting fact in connection with these excavations is the raising of the surface of the earth through the deposits of time. Mr. E. A. Webb, in an interesting account of his work at the church in co-operation with Sir Aston Webb, P.R.A., tells us that "In the City of London many of the old buildings have sunk from 16 to 18 ft. below the surface since the Reformation. Bow Church is 16 to 18 ft. below the surface of the road." In excavating the Cloisters of St. Bartholomew's Church they had to remove about 7 ft. of earth from the floor.

An Architect's Indictment of Coal Smoke.

THIS is the title of a spirited article by Professor C. H. Reilly in the Gas Industries Number (2) of *The Manchester Guardian*, published on the 24th inst. He draws an idyllic, almost a fanciful, picture of such a city as Manchester as it might be "if the tons of tarry acids and soot from their domestic chimneys" went down the sewers instead of falling on our persons and our buildings. "They would, one may be sure, be towns of peculiar beauty, a beauty, too, very different from that of the sunny towns of the Mediterranean. Instead of the bright colours belonging to a lower latitude, we should have the far more beautiful half-tones and pearly-greys belonging to our northern climate. Our buildings to correspond would have to be more delicately modelled, with less strongly marked shadows. Deep porticoes would rarely be used save to mark points of special importance. The architect, instead of being a man accustomed to think in black lines, would become sensitive, not only to every shade of colour, but to every modulation of surface and texture. No longer could we tolerate the hard, bright reds of our machine-made pressed bricks. The black joints, too, in which we set our brickwork, grinding cinders into our mortar where the south uses sand, would seem to be what they are, so many dirty lines drawn across the fair faces of our buildings, and thereby adding most unnecessarily to the gloom. A vulgar moulding, too, an over-emphasised piece of ornament, would become so conspicuous in proper daylight, when all the surroundings would be clean, that the author of it would begin to be cut by his fellow architects and even his lay friends as a man of bad and flamboyant taste." We are glad to think that the effects of smoke are being recognised, and that greater interest is being taken in the matter.

Figure of Marie Madeleine in the Cluny Museum, Paris.

GENERAL NEWS.

Professional Announcements.

The partnership between Messrs. T. Brammall Daniel, F.R.I.B.A., and H. W. Parnacott, A.R.I.B.A., of Members' Mansions, 36, Victoria-street, Westminster, S.W.1, will come to a close, by mutual consent of the partners, on September 29. On and after September 30, Mr. T. Brammall Daniel will continue to practise at Members' Mansions, 36, Victoria-street, Westminster, S.W.1.

Mr. Charles M. C. Armstrong, F.R.I.B.A., architect, has changed his address from 5, High-street to 39, High-street, Warwick. Telephone 194.

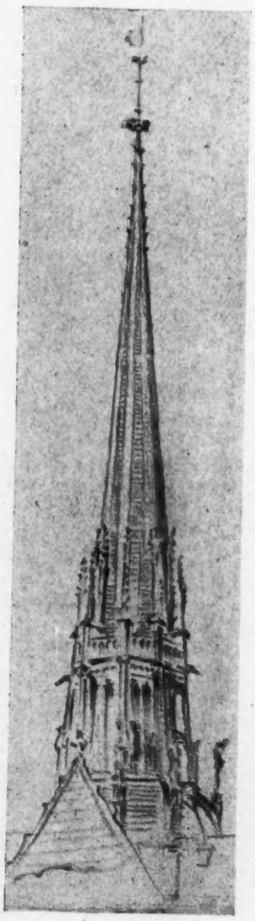
Mr. W. A. Goss has commenced practice as an architect and surveyor at Teignmouth and Dawlish. Manufacturers, &c., are invited to forward catalogues of building and engineering specialities to 18A, Orchard-gardens, Teignmouth, S. Devon.

Appointment.

In view of the new works to be undertaken by the Carmarthenshire County Education Authority, at an estimated cost of £150,000, a new assistant to the County Architect, at a salary of £500 per annum, has been decided upon. The post will be for six or twelve months.

Swansea University College.

Swansea Town Council has decided to apply for a provisional order to enable them to advance £50,000 to the University College of Swansea. The Town Council have already given Singleton Abbey and a certain amount of land to the College. The Corporation bought the Singleton estate a few years ago from the late Lord Swansea for £100,000.



Fleche at St. Benigne, Dijon.
From a Sketch by MR. G. NORBURN.

Recent Excavations.

Lectures on recent excavations in Mesopotamia, Egypt, and the Mediterranean, showing the evolution of architecture from the fourth millennium to Roman and early Christian times, will be given by Miss Claire Gaudet at the British Museum on Thursdays at 4.30 p.m., beginning on Thursday next. Application for tickets should be made to the Hon. Secretary, "Recent Excavations," 120, Cheyne Walk, Chelsea, S.W. 10.

Rebuilding the Bank of England.

Referring to the rebuilding of the Bank of England, at the half-yearly court of proprietors, Mr. S. P. Derbyshire raised the question of the advisability of retaining the outer walls of the building. The Chairman, Mr. M. C. Norman, said that, as he understood the position, they were committed to no definite and final decision. He was also of opinion that the outside walls of the bank were the only part of the building which had become really historical, and added that in the plans under observation the question of retaining these walls was being considered.

Kinghorn Memorial.

At Kinghorn last Saturday the recently completed war memorial was unveiled and dedicated. The Lord-Lieutenant of Fife performed the ceremony, and General Sir Robert Hutchinson, M.P. for the Kirkcaldy Burghs, on behalf of the subscribers, formally handed over the memorial to the Town Council. Mr. William Williamson (Kirkcaldy) was architect of the work, which is entirely of Cullaloe stone; and the sculptor was Mr. Alexander Carrick, A.R.S.A. (Edinburgh). No fewer than 60 names are inscribed on the memorial, which has been erected at the Port, opposite Rossland U.F. Church.

The Royal Archæological Institute.

Members of the Royal Archæological Institute will visit the Inns of Court on Thursday, under the guidance of Mr. W. H. Godfrey, F.S.A. The meeting has been organised by Mr. V. B. Crowther-Beynon, F.S.A., and Mr. A. T. Bolton. The members will assemble at 10.30 a.m. at Gray's Inn (East Gate), and later cross Holborn and proceed to Barnard's Inn (now Mercer's School). Then, in turn, will be visited Staple Inn, the Record Office, the remains of the Rolls Chapel, Lincoln's Inn, Clifford's Inn, Inner Temple, Temple Church, Fountain-court, Essex-court, and New-court. Those wishing to attend the meeting should write at once to Mr. Bolton, 19, Bloomsbury-square, W.C.1.

York Archæological Society.

Members of the York Archæological Society had an interesting outing, organised by the Joint Hon. Secretaries, Mr. W. A. Evelyn and Miss M. Leaf, the venue being Byland Abbey, where valuable discoveries have been made as the result of excavations carried out under the supervision of Mr. C. R. Peers, Chief Inspector of Ancient Monuments. Mr. Peers conducted the party and pointed out some tile work in the presbytery and south transept, which, he said, was the most complete work of its kind yet discovered. Greetings were exchanged with the Durham and Northumberland Archæological Society, who were also paying a visit to the Abbey.

Town-Planning Institute.

The Fifth Annual Conference of the Town-Planning Institute will be held at York, from October 5 to 7. The programme is as follows:—Friday, October 5—Paper by Mr. George Benson, A.R.I.B.A., on "The Evolution of the City of York"; Paper by the City Engineer, Mr. F. W. Spurr, on "The Town-Planning Proposals of the City of York"; Paper by Mr. F. C. Mears, on "The Planning of Mediæval Cities"; Visits to places of interest in the city; Reception at the Guildhall. Saturday, October 6—Visit to New Earswick Model Village; Dinner at the Station Hotel. Sunday, October 7—Char-a-banc excursion to a place of archæological interest near York.

"Heart" Tomb at Braborne Church, Kent.
[This is described as a "heart" tomb, but it appears to be a shield. It is stated that there is only one other "heart" tomb in existence in this country.]

COMPETITION NEWS

New Offices for Holt Line.

Messrs. Briggs, Thornely & Rowse, F. & A.R.I.B.A., of Liverpool, have been awarded first place in the competition for the new offices for the Holt Line. Other competitors were Sir Edwin Cooper, F.R.I.B.A., Messrs. A. J. Davis, F.R.I.B.A., W. Curtis Green, F.R.I.B.A., and Willink & Dod, F. & A.R.I.B.A. The assessor was Mr. G. Gilbert Scott, R.A. The successful architects are well known, Mr. Arnold Thornely being the architect for the new Parliament buildings, Belfast; Mr. H. J. Rowse is an old student of the Liverpool School of Architecture. About ten years ago he was top of his year and appropriately enough, as it turns out, he won the Holt Travelling Studentship. He went to Winnipeg to make the working drawings of the Parliament Buildings, Winnipeg, Manitoba, of which Mr. F. W. Simon, F.R.I.B.A., was the architect.

Masonic Temple, Birmingham.

Sir Banister F. Fletcher, F.R.I.B.A., the assessor in the competition for designs for the new Masonic building in Broad-street, Birmingham, for the Provincial Grand Lodge of Warwickshire, has made the following award:—Winning design (premium £500), Mr. Rupert Savage, F.R.I.B.A., P.M., Howe Lodge; second premium (£300), Mr. S. N. Cooke, F.R.I.B.A., P.M., Grosvenor Lodge; third premium (£200), Bro. Hurley Robinson, Bedford Lodge. The design placed first is illustrated on pp. 483-4, and the assessor's report is given on p. 489.

Bridge over the River Medlock, Limehurst.

FOR THE R.D.C.—Designs for a bridge over the River Medlock. Sending-in date, October 22. Mr. Reg. Thompson, Council, Ashton-under-Lyne.

Taunton.

Designs for a war memorial, for the Council of Taunton School. Sending-in day, November 30. Conditions may be seen at *The Builder* Office. (See our issue for September 21.)

Other Competitions.

For competitions open see our last issue.

PLYMOUTH.

BY A. E. RICHARDSON, F.R.I.B.A.

THE famed but untitular capital of the West Country lies screened from the sea between two mighty headlands, its topography clearly seen from the height of Dartmoor, yet mysterious on nearer approach. It is a curious situation, but none better could have been chosen for making the most of an intricate water front. Plymouth is not ancient as towns go, although her visage is grey. She has parts that to modern eyes may pass for antiquity and carries a look of establishment that defies scrutiny and lends interest to her years. It is impossible to say where the boundaries of the town begin and where they end, for the secret is guarded well. Time was when Drake's captains had to feel their way cautiously into the Cattewater; and even the great Medina-Sidonia lumbering up to Calais did not deign to throw in a few round shots, such was the remoteness of the Tudor port. All is changed. The heart of the town has dilated to a new centre, tentacles have been thrown out to include erstwhile villages, the foreshore is fringed with terraced walks, wharves and miniature harbours for eight miles; and at night both strand and towering heights show lamps that twinkle out to the deeps like candles in a ballroom. From the Hoe, Plymouth views the broad sea and marks at sunset the paths to the New England which she has helped to create. Due west may be seen the far-flung beams of the Eddystone, and beyond the soft contours of Cornwall thrust outwards and upwards in defiance of Neptune. From the Hoe, too, you can look backwards to the blue of Dartmoor, swathed in clouds and damp with the mists. Plymouth is a cradling place for all who prepare for the sea; she has no right to quarter-deck status, whatever claims are put forth by Stonehouse and Devonport. She is rather in the position of leader of a flotilla—all of which have characteristics in common. In fact, sheltered from the storms that rage, she is built to withstand drenching rains and damp mists, hence the prevalent tint of grey—the covered granite, the close shingling of slate, the tight skin of stucco, immuning local thought to the theory of a perpetual weather coat. No other seaport in England is like Plymouth, none has the same cleanliness; not one can boast of such marble pavements or such perpetual spring cleaning free from charges on the rates. Approaching Plymouth from the sea, one slips into the Sound as into a bed of down after a day of hard work. There is not much to indicate the presence of a town of the first size; the Citadel is toylike. The stump of Smeaton's lighthouse seems like an oak shorn of its branches; the houses on the summit of the Hoe have nothing of Continental magnificence. There is, however, something of mystery in the direction of Sutton Pool, and to the west, where the Hamoaze opens out, beyond Drake's Island, more than a suspicion of activity.

Approached by rail from the direction of Exeter, Plymouth presents a skyscape of infinite charm; there are the clouds that race from the sea above the murk, the aspect of railway tracks, the shrill cries of locomotives that call the one to the other, a glimpse of houses that run up and down hill, a vision of skiff masts, replete with pulley blocks that carry gay strings of washing to decorate back yards. Small wonder is it that passengers who have been seated for four hours within the confines of a compartment should experience quickening emotions between Plympton and North-road. Happy are those who journey onwards by rail, for from Plymouth to Saltash they gain ideas of topography from bridges and viaducts that embrace selections of chimney pots, fighting tops, funnels, depots and other paraphernalia. The railway, if the term is allowed, bisects the three towns, and far from revealing the secret of the garrison, makes the passage endless.

So much for two methods of studying local topography. The best remains, and that is to walk through the streets and read the buildings, for Plymouth inspires with a message that is far from provincial, for her attraction has to do with the sea. In this sense, she is feminine to a degree—the true lover of a sailor or a marine, the "Sweet Poll of the West Country," a lover of many pleasant memories. In the past many among the great ones in our Island story have trod the stones of old Plymouth, or paced the newer pavements. Here have foregathered merchant venturers and daring captains, hereabouts men have plotted to keep their lawful King outside the walls, here some have made a stand against religious persecution, and from these quays the founders of modern America took their last leave of the country that had no use for their zeal. Admirals and generals, statesmen and artists, kings, conquerors and captives have each in turn come within the spell. What must have been Napoleon's thoughts when, anchored out in the Sound, he looked down on the Lilliputians who swarmed round the ship?

Most people imagine that Plymouth is a modern place with buildings of little interest. This is a fallacy. On the contrary, the buildings of Plymouth, like the indigenous materials, have a character entirely their own. A type of Dorian simplicity, a breadth of handling that give the streets the assay mark of quality. There are the Elizabethan houses near Sutton Pool, the matured Georgian houses of Durnford-street haunted by the shades of admirals whose names are forgotten save in the muniment rooms at the Admiralty, the stucco crescents and terraces fashioned by Foulston and Wightwell, the quasi-mediæval shaping of the municipal buildings and the scale of the hospital and barracks. And while you are looking around taking in all these things, admiring perhaps the portico of the Theatre Royal and musing on the fact that Sir Joshua Reynolds was born at Plympton two centuries ago, there comes to mind the fact that Plymouth has to do with national defence, and that not the least of her townspeople are the sailors and soldiers who claim the town as their own.

Dundry Tower, near Bristol.

CORRESPONDENCE.

Preservation of Somerset Church Towers.

SIR,—The photo here reproduced will be recognised by your Bristol readers as the famous Dundry Church Tower. It was built during the sixteenth century by the Merchant Venturers of Bristol. It stands about 700 feet above sea-level, and the old cross to the left is thirteenth-century work. Having occasion to mount to the top of the tower, my attention was drawn to four flying buttresses built diagonally behind the four principal pinnacles.

The base of these buttresses is 8 ins. square, and apparently they spring from squinch arches below the leads. During a restoration a few years since the base of these buttresses was pierced and a 1-in. iron tie rod inserted, connecting the north and south buttresses.

It only requires a little time for the iron to oxidise and burst the stone. It seemed hardly credible that any architect would permit tie-rods piercing small stones in this way.

The late Mr Edmund Street (the gifted architect of the present nave of Bristol Cathedral) took considerable interest in Dundry Tower during the early 'seventies.

Weston-super-Mare. EDWARD VALE.

The Cowley Family.

SIR,—I am desirous of expressing to you and to one of your readers, Mr. Dudley Harbron, F.R.I.B.A., of Hull, my thanks; to you for the insertion of my letter in your journal of the 7th inst. on the above pedigree, and to this gentleman for information sent to me direct.

I have thus been able to ascertain the descent of Walter Cowley, of London, from his ancestor John. I do not know if the matter of a date is of interest to some; but in the *Gentleman's Magazine*, Thomas Cowley, of Donington (founder of the schools named after him) is stated to have died in 1718. This is incorrect, for the date taken from the burial certificate in the church register is 1721. This, too, is the date on the memorial slab in the aisle floor of Donington Parish Church. Having thus, by the aid of *The Builder*, found willing helpers in establishing the descent of Walter Cowley, of London, from the Staffordshire ancestors, I am hoping other kind friends may be able to give us some links to connect Thomas Cowley, of Donington, with the above Walter, of London. One of Thomas Cowley's trustees was a Luke Cowley, of Crowland, possibly a younger brother. Thomas died in 1721, and Luke in 1730. By reference to church tablets or registers this may help to connect them, especially if the arms are displayed; and any help will be much welcomed

EDWARD A. JOLLYE, A.R.I.B.A.

Saturday Half-Holiday.

SIR,—Where, when, and why was the Saturday half-holiday established in the building trade? I have never heard the matter discussed. All concerned seemed to take it legally or religiously. I can understand observance of the Day of Rest for an indefinite period, but that Saturday half-holiday baffles me.

I know plenty of operatives in the building trade who think nothing of having a month's holiday in the summer-time, and even more in the winter-time; yet, if it were suggested to them that they should abandon observance of Saturday half-holiday, almost without exception they would regard that suggestion as equivalent to a proposed reduction in the rate of wages. But, even so, it does not follow as night the day that nothing else would eventuate to compensate and make the means of livelihood a little more interesting and a little more in accord with the laws of Nature. In fact, more than once I have silently gazed on some building estate at a standstill at mid-day Saturday, and destined to remain at a standstill till the following Monday, 7 a.m. In short, Saturday half-holiday, apart from the Day of Rest, seems to me perfectly meaningless. ARTHUR GEE.

THE CLERGY AND ART.

By "A CRAFTSMAN."

WE are hearing just now a good deal of discussion on "spiritual healing" and how far these more mystical aids may come to the help of therapeutics in overcoming sickness and disease; but of the kind of spiritual healing with which beauty revealing itself through a nation can endow us we find but little, if any, recognition. And yet we might, from the amount of discussion and organisation directed to the promotion of art, expect that this was not the case, if we believed that such promoted it, which some of us do not. We are not conscious of our body when well, and art, when it functions properly and takes its place as industry well directed, needs but little fostering, happening, as the best things do, out of the virtues and life of the people. The fact, therefore, of so much organisation to-day should not too much reassure us, because it is all evidence that we need the physician, and we do not when well.

It would be unjust, however, not to perceive that this is becoming more recognised, and that the importance of beauty to religion, to health and to morality, and to a more ameliorating interpretation of life, is entering into our thoughts; and the view that art was a luxury which only the fortunate could afford, or that even money could alone secure it for us, in the light of the fact that the nations at the time of its highest development were relatively poor, is much discredited. The clergy, inheriting so long a tradition, are perhaps too readily inclined to think that an ecclesiastical appearance, some likeness to past work, satisfies the needs of beauty, and that to be imitative in this sense established its claim to be traditional. Unfortunately, such a view leaves out the major part of tradition. It has not always appeared to them that it is possible in a very narrow sense to be all this without much aid from art at all, because beauty is a creative thing, for which learning and orthodoxy are not sufficiently adequate equipment in themselves, though we are not at enmity with either. But in such a case revelation may have ceased altogether, and what we have to seek again for the church is that contribution of art which is creative and which, in becoming so, will give life to tradition once more.

The clergy have been too much accustomed to look for art of one pattern, and to order it from the catalogue, to consider enough what they are really seeking. In the deepest sense of it, to judge of men is to judge of art; and we must not depend on our own recipe for virtue, and should look beyond outward and inherited semblance and the conformities of the catalogue if we are to judge of it. Our standards are too much concerned with the use and want of custom, which has built up a large manufacture of art products, the result of industrialism and its commercial ideals. Beauty has little to do with this, and our minds have to become freed of habit and the customary for its influence to become greater. Industrialism has woven such an organisation around us that it is very difficult to penetrate beyond it to where beauty dwells in the heart of the artist, and our outlook is largely wrong.

To instance a case. A memorial window is required for the church, and it will not be unusual for the incumbent to ask for estimates and designs from half a dozen people; and perhaps, if well advised, there will be an artist among them, not working on competitive commercial lines, who will very likely not have been told that others are competing. The design chosen is the one showing the lowest estimate or that one which is most conformable to the expected, *i.e.*, the design which is "-exclusive" and made from the old material of the eminent Sir Blank Dash, R.A., who died from twenty to thirty years ago. But it is more like that to which we have become accustomed, while the artist's—who has created his design—is not, and therefore asks much more from us. And then, as finale to it all, this artist asks to be paid a small fee for his design, to the consternation of the incumbent, for the other competitors submitted their designs without charge for them. Cannot the clergy interpret the inference of this without our labouring it here?

The clergy need the training which shall enable them to recognise authentic beauty from the substitute, and to reject the plausible and the imitative and the standards of a commercial approach, for this is essential to the prospects of more vital art. In such circumstances timidity will not help us to a more exalted and living tradition. We need to decentralise art from all this, and seek it independently in the individual, from the artist, getting through to him at first hand.

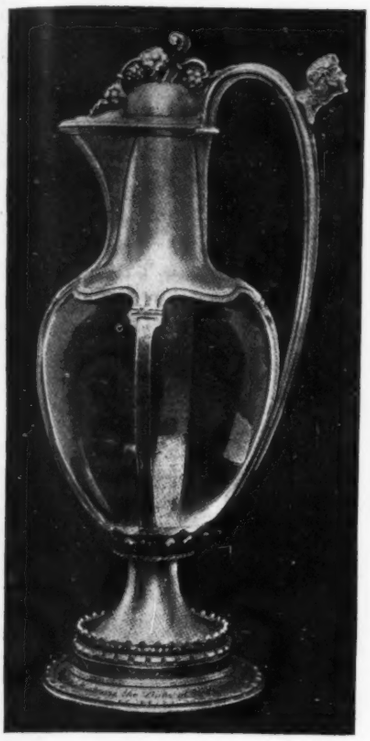
The clergy are shy of the artist, because they are not sure, and do not understand his orthodoxy, through which his title to artist is sustained, and consequently look often in the wrong place in an easy acceptance of bad conditions. But in saying this we do not fail to recognise that there are exceptions, and that credit is due to the efforts made by some among the clergy in the face of many difficulties.

In looking for the remedy we must not rely too much on organisation. We cannot raise ourselves above our own stature merely by numbers. Committees, experts—committees of taste—are often but to make "art tongue-tied by authority"—because they are only expedients, whereas we need for security the illumination of our own minds—to be something ourselves. In the end the church has the art it deserves, and the better appreciation by the clergy of the nature of art is a greater security than trusting to experts and committees. Happy is the art which has but little government, and which emerges as the rightly directed activity of the race. For by the time a committee has sat long enough, it will play for safety, and there is no safety in the finest adventures of art or life. But it is better to risk defeat than to risk nothing, and the best hope for art lies less through the accredited ways and channels than through our own enlightenment as to where it should be found.

It is not unusual to hear the statement that craftsmanship in the old meaning of the term is dead. It is often the case that while we are deploring the loss of a thing in one direction it is appearing through another. Craftsmanship in the old sense has little application to mass production, with its minutely divided processes, and were this the only direction for personal craftsmanship we might accept the loss as a fact. But there has grown through the development of a more applied craft-training a considerable expansion of the small industry in recent years, and we are only at the beginning of this development which includes within it a change in human objects, from those of rivalry in competition to a more corporate aim. We do not care to exaggerate the consequences of this new direction, nor, because believing in the little leaven, disregard the many difficulties in the way. But it is the case that the small workshop, the local industry, is modifying the situation, and, far from craftsmanship being dead, it is very much alive and extending its hold. Instead of creating new wants, exploiting the weakness or indulgence of the community, it is creating new worth and co-operating in the true ends of art, which are the amelioration and satisfaction of life. It is when we regard these issues that the gravity, lying in neglect to foster the real ends of beauty, comes home to us, and the responsibility of the clergy becomes so great. For art grows out of life, not out of former art or precedent; nor can our knowledge of past styles and schools create it for us.

At the Church Congress Exhibition.

Alabaster Panel representing the Visit of the Magi (said to be 13th century work), from Treslotham, Cornwall.



Claret Jug presented to H.R.H. The Duke of York by the Royal Academy.

THE CHURCH CONGRESS EXHIBITION

THE Bishop of Exeter on Saturday afternoon last opened the Church Congress Exhibition and Loan Collection, held in Millbay Drill Hall, Plymouth. The exhibition, the fortieth of its kind, is probably one of the most remarkable in the history of the Congress. A feature of the loan collection is that the bulk of the exhibits have been drawn from the two counties of Devon and Cornwall.

The Mayor of Plymouth (Councillor S. Stephens) officially welcomed the Congress. Mr. H. W. Hill, Director of the Exhibition, said the exhibition showed that even in these modern days the old crafts were not yet dead. The Exhibition remains open until this evening (September 28).

The Royal exhibits include the addresses of welcome, lent by the Prince of Wales, which were presented to H.R.H. at Bradford, Birmingham, Bath, Leeds, Liverpool, Nottingham, Dorchester and Manchester. H.R.H. the Duke of York has lent the claret jug presented to him by members of the Royal Academy on the occasion of his marriage. The jug, which is entirely hand wrought of sterling silver and crystal glass, is of very great interest. The lid is surmounted by a cresting of forged vine leaves and tendrils. The handle bears a miniature bust of Dionysus, the god of wine. The actual mountings of the glass are made after the manner of a "spider helmet," so that in case of breakage a new glass can easily be inserted. The foot, which bears the dedicatory inscription, is fashioned in a remotely castellated manner, as a symbolic reference to the fortified dignity of Royal estate. It was designed and made by Mr. Omar Ramsden.

Devon and Cornwall are rich in ancient church plate, and some exquisite specimens are on view. What is probably the oldest parochial chalice in use in England is lent by the rector and churchwardens of Ashprington, Totnes. It is a fine example of thirteenth-century work and the date assigned to it is 1275. It is just under 6 in. in height. It has a hemispherical bowl with the addition of a lid about 4½ in. in diameter and about 2½ in. deep. The stem is octagonal, with large rounded boss or knob, and a circular foot, outward spreading, with plain vertical edge.

The chalice (date 1628-9) lent by the vicar and churchwardens of Dawlish is of interest from the fact that it is a replica of the chalice from which King Charles received his last Communion, and is by the same maker.

The only example yet known of a chalice by an Exeter goldsmith, named Richard Osborne, who was working at Exeter from 1562 to his death in 1607, is lent by the rector and churchwardens of Cadleigh, Tiverton. It may be dated as *C*1572.

A chalice and paten, dated 1575, made for Duloe Church, Cornwall, is lent by the rector and churchwardens of that parish.

Some pieces of pre-Reformation plate, a chalice and paten, come from St. Mary's Bradoc, Lostwithiel, lent by the rector and churchwardens, but it bears signs of modern "restoration." From the same source comes an Elizabethan chalice and cover paten, dated 1576.

Many points of interest are to be noted in the communion cup, dated 1650, lent by the rector and churchwardens of St. Tudy, Cornwall. It bears the annual date letter of the London Assay Office for the year 1650. The cup is of the peculiar type which was introduced about 1640 and continued until 1660. The most marked characteristic of the cup is the adoption of a stem of the baluster form. There are supposed to be only two others like it in the Kingdom.

The communion cup with cover, lent by the rector and churchwardens of St. Petrock's, Exeter, is dated 1572. Seven complete figures of saints are worked on the material with silk and gold thread. It is possible to recognise St. John Baptist, St. Dorothea, St. Paul, and Edward the Confessor.

The Wraxall chalice, lent by the rector and churchwardens of the parish, is quite unlike any other in Dorset or Wilts. The bowl is straight-sided and tub-shaped; the stem tapers from the base almost to a point. It bears a maker's mark which resembles one found on plate made between 1615 and 1629, which may perhaps be the date of the cup, or it may be later in the seventeenth century.

Of Bibles, manuscripts, &c., there are many examples, including a quarto Bible and Prayer-Book dated 1575; also a quarto Bible and Prayer-Book, dated 1730, with office of "At the Healing." More interesting still is the copy of "The Four Gospels," by Andrew Jukes, 1864. It has General Gordon's signature in pencil and many passages marked by him.

An autograph letter of Sir Walter Raleigh (1584) and the "seal" of Joanna Southcott, discovered in an old house in Exeter, are shown by the courtesy of the Royal Albert Memorial Museum, Exeter.

The great missionary, Henry Martyn will always have an interest for West Country folk, and in the exhibition will be found a view of a house at Shiraz, where he stayed in 1811. A view of Martyn's grave at Tokat is also shown.

Among the manuscripts lent by the Proprietary Library of Plymouth is one entitled "A Cat may look at a King," by Sir A. Welding (1652). It is believed that this MS. is unpublished. It contains the characters of the English sovereigns to Charles I.

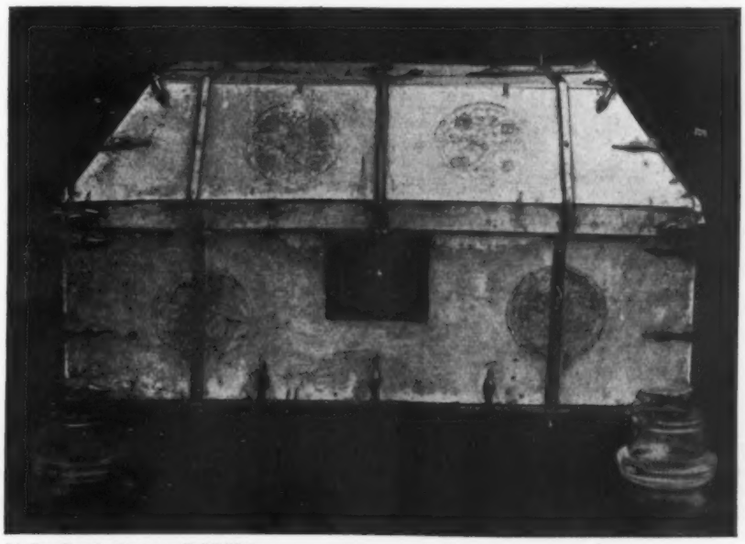
A pathetic interest attaches to the hearse cloth or funeral pall presented to Westminster Abbey by the Actors' Church Union in memory of members of the theatrical profession who fell in the war, and lent by the Dean and Chapter. It was first used at the interment of the Unknown Warrior in the Abbey on November 11, 1920. Designed by Mr. W. D. Caroe, F.S.A., and executed by Miss M. Hollier, the pall follows the model of certain mediæval specimens preserved by various City Companies. The groundwork is of white brocade, powdered with the Tudor rose and portcullis badges.

The exhibits also include Charters lent by the Mayor and Corporation of Plymouth; the white Plymouth china sphinx; the alms box from the south wall of Pinhoe Church, known as "The Poor Man of Pinhoe"; the Ducking Stool (1656-7) which was in use at the Barbican, Plymouth, as a punishment for "scolds," as recently as 1806; the thirteenth-century alabaster panel, representing the Visit of the Magi; a large number of crosses, including the Siege Cross of Ladysmith made by soldiers from a Boer shell fuse; the Ascoti Cope; the deck cannon from the Spanish Armada, the ramrod of which was broken in the gun, so that the vessel blew up in the act of charging; the last club used in war by Thinkambo, the last King of Fiji; a touch piece of Charles II presented by the King to persons whom he touched for the King's Evil.

The Builder model of Old St. Paul's is also on view.

£150 Housing Subsidy.

Pontardawe (Glam) R.D.C. has decided to add £50 from the local rates to the £100, the capitalised grant permissible under new Housing Act, making an advance of £150 per house erected by private enterprise.



At the Church Congress Exhibition.

The St. Petroc's Casket (said to be 12th-century work), from Bodmin.

THE ANCIENT CHURCH OF COPFORD IN ESSEX.

By W. De GRAY BIRCH.

VERY few churches in the county of Essex possess so many features of interest from an archæological point of view as that of Copford. The village and small parish takes its name as being the site of a ford over the "Roman River," so-called, which, rising in the adjacent neighbourhood of Mark's Tey, runs in a south-westerly direction towards Abberton, and falls into the River Colne at Wivenhoe and Rowhedge. The church lies about a mile and a half from the junction of the Great Eastern Railway at Mark's Tey and about five miles to the south-west of the great town of Colchester. This ancient building of early Norman date—of which I am enabled, by the kindness of the Rev. Edmund R. Ruck-Keene, rector, to reproduce four photographic illustrations of much attraction to antiquaries and architectural students—is dedicated to St. Michael the Archangel and All Angels, It possesses an arcaded nave with fine arches of early Norman style, chancel with round-headed arch of large radius, nave with curiously arched roof, and remnants of arches on each side which suggest, from the reduced radius of their segment, that they met in the centre of the nave by a kind of pendentive arrangement, a south aisle, a south porch carrying a small wooden turret at the west end, in which are three bells, covered with a shingled spire, and a very remarkable semi-circular apse at the east end. This apse and the nave are probably the oldest features of the building and belong to an early Norman design—if, indeed, they are not the creation of a Saxon architect whose career extended into the closing years of the eleventh century. The aisle is an addition of about the end of the fourteenth century. This aisle was cut through the south wall of the original church, and in course of the work the original windows had their lower parts destroyed, but their arched heads are still visible in the view (Fig. 2) on the right. They were filled in with rubble when the alterations took place. The old Norman buttresses of the south wall of the church constitute the pillars separating this aisle from the nave. About 1690 the church was "restored" by the parishioners, and upon scraping the inside walls, with a view to giving them a coating of whitewash, "there appeared," as is stated in Wright's "History of Essex," "very fair and fresh paintings of Christ upon the Cross, the mother-in-law of the apostle Peter lying sick of a fever (error for the centurion appealing to Christ), Mary Magdalene, &c., which were all whited over again, but not otherwise injured." This statement led to the scraping off of the whitewash in 1872 from the interior of the apse, and the interesting paintings as now seen were brought to light, and unfortunately "recoloured" by a Mr. Daniel Bell "exactly as he found them." But none of those mentioned by Wright were among those then uncovered. In 1880 the body of the church was "thoroughly restored," when the entire surface of the Norman walls was found to be covered with very beautifully designed and drawn early mural paintings, evidently those referred to by Wright, constituting a veritable and comprehensive *Biblia Pauperum*, as it is called, a series of Biblical pictures adapted to the simple understanding of the peasant votary of the "unlettered muse," whose limited education did not go so far as to enable him to read the Scriptures. These quaint pictorial efforts of an early mediæval artist, we are told, have not been marred by repainting but remain in their pristine condition. The pose of the figures, the drapery and accessories, are elegantly drawn and bear close comparison with similar drawings contained in illuminated manuscripts of English origin as old as the twelfth and thirteenth centuries.

With respect to the fabric of the church, some antiquaries conjecture that the walls form part of a building erected by the Romans during their occupation of Britain, others give the early Norman times to its foundation. It is, at any rate, very rich in Roman materials. The quoins of the buttresses consist, for the most part, of Roman tiles, and a course of these passes round the whole (see Figs. 1 and 4). Some very fine specimens of these tiles are visible, especially one by the north door, with the large dimensions of 22 by 18 ins. Were this church built by the Romans it would probably have been a temple, afterwards converted into a Christian church, but no record exists to confirm this view. The principal point of interest is the circular apse, carrying very beautifully proportioned windows with round-headed arches not provided with voussoirs, but having slender columns at the sides, and set high up between massive buttresses (see Fig. 4) which are carried up to the top of the wall. The work here shows extensive employment of Roman tiles and bricks, no doubt obtained, as was the case at St. Alban's Abbey Church and many other buildings, from some Roman edifice not far off. In contrast to this antiquarian charm is the lavish display of mural decoration which detracts, as at Ely Cathedral, from the appreciation of the archaic *ensemble*. Passing from the chancel and noting the wide overhanging eaves of the apse, and proceeding along the north side, one observes a narrow doorway, now blocked up, of the kind said to have been in use for the entry of the choir from the fifth to the twelfth century, but later reserved for the use of the priest only. This door was visable as late as the sixteenth century, for the unfortunate Bishop of London, Edmund Bonner, resided in the adjacent Copford

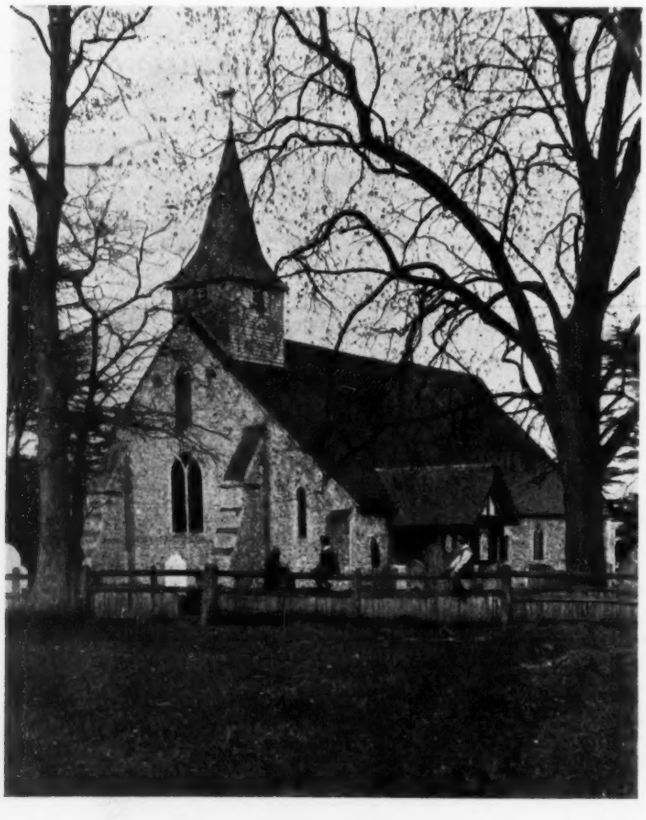


FIG. 1.—SOUTH-WEST VIEW.

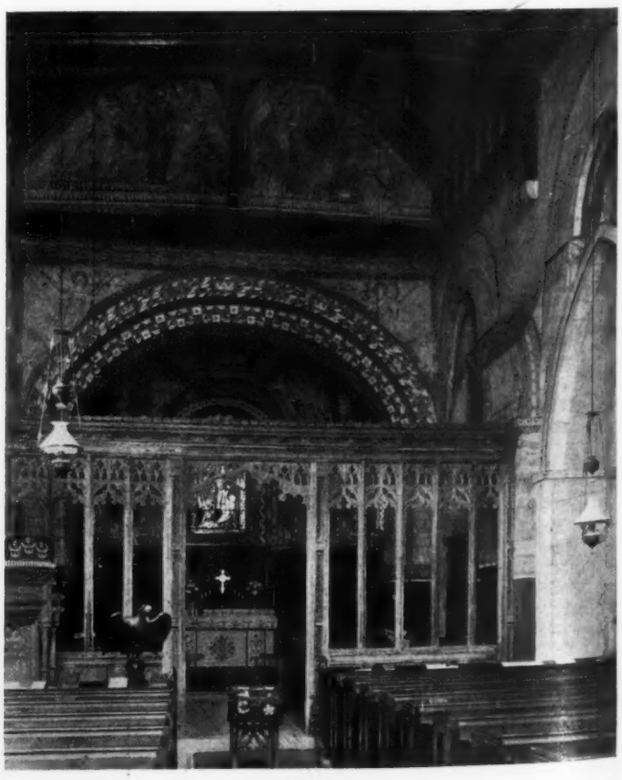


FIG. 2.
CHANCEL AND SOUTH WALL, WITH WINDOWS AND ARCH OF NAVE.

Copford Church, Essex.

FIG. 3.—CHURCH APSE WITH WALL PAINTINGS.
Copford Church, Essex.

Hall, and his remains, which were discovered in 1809 by John Kelly (then rector), still lie buried beneath the altar.

A few steps take us to the adjoining buttress in the church wall, which has a peculiar division in its heading, showing that it originally led through a doorway into the roof of the church. The north door, with circular arch, is curious, for the door itself was at first the south door of the church, and on it, as related by Newcourt (who is somewhat sceptical about the story), were found remains of a human skin, said to be that of a Dane who was captured in a field, still called "Dane's Field," and as a punishment for sacrilege flayed alive and his skin nailed on the door, small portions of which are still visible under the massive ironwork on the door, and other pieces of it are preserved in the vestry and in the Colchester Museum. The wall of the west end is considerably out of plumb; this was probably caused by its being overweighted by the tower, a fourteenth-century erection, with slight Norman buttresses, insufficiently strong to carry the additional weight resting on them. These buttresses had, indeed, been strengthened at an early date by rude masses of brickwork, now replaced by those of an Early English style of architecture. The church itself is lofty, having been at one early time, as stated in Holman's MSS. in the library of the Colchester Museum, all arched over, as appears by the vast thickness of its walls and existing remains of the vaulting work. Above the west window was a door, with holes on each side for lighting the interior of the old groined roof, where the priest had a private chamber or parvise furnished with a lavatory drain pipe. At the south-west corner an aisle was added (see Fig. 2) in the fourteenth century, formerly furnished with a porch, unhappily destroyed in the latter half of last century. Curiously enough, the pillars already described as separating this aisle from the nave, and consisting of the old buttresses of the original church, show the same method of use of Roman tiles in the quoins. The chancel screen belongs to the late fourteenth or early fifteenth century. The mural paintings are too numerous to be described in detail within the scope of this short notice. I can only say that the church deserves close investigation of its numerous details of ancient date, and being so close to London well deserves a pilgrimage which offers so many points to the notice of the student of ecclesiastical art, whether he be a novice or an advanced master in the science of ecclesiology.

The Architecture Club.

The next dinner of the Architecture Club has been fixed for Thursday, November 22, 1923.

EXHIBITION NOTES.

FRENCH ART AT THE LEICESTER GALLERIES.

IT is doubtful whether the average lover of pictures in this country is attuned to the right point of appreciation of modern French art. The French painters obviously look at nature in a more or less different way from us and we always feel that there is possibly less sincerity and less self-abnegation amongst French painters than those of our own country. They have certainly taken up with avidity the lead into the bizarre and novel treatments which the last few years have seen developed, and it is not a little difficult to see why so many extraordinary pictures are painted, whilst we wonder if there exists any appreciable number of picture lovers who really like the outrageous stuff which has passed for pictures in the last ten or fifteen years. There are pictures in the collection of modern French work now open at the Leicester Galleries which are a pleasure to look upon, but there are a number which no amount of study or consideration can bring us the least atom of pleasure. It is not a little curious why it should be considered worth while to paint and draw the female nude in so coarse and disagreeable a way as to eliminate all the natural beauty or grace which the nude female is supposed to possess. Granted that these are graphic and true as studies, why should we be called upon to look at them in a public exhibition? There is certainly a fine nude study by Degas in the exhibition, but even at the loss of his masterly drawing we should be content to have remained in ignorance of many things he has done. It is curious to contrast the spirit which produced the beautiful "Moonrise," by Harpignies, the delicate Corot "Paysage d' Italie," or the later perfect picture of his making, "Le Coup de vert dans les dunes," with the terribly coarse and stupid work which is to be seen in the other gallery. What fine accomplishment there is in "Still Life," by Fantin Latour, and the "Dordrecht," by Boudin. And yet they hang in the same gallery as things which in form or colour, in composition or sentiment, appear almost beyond the pale of civilisation. Our French neighbours are a nation of artists, but they have suffered as badly as any from the inroads of a restless groping endeavour after a new art.

FIG. 4.
EAST END APSE, SHOWING COURSES OF ROMAN TILES IN WALLS AND ORIGINAL BUTTRESSES.
Copford Church, Essex.

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ILLUSTRATIONS.

Prince Hall, Dartmoor, Devon.

These plans show the rebuilding of the above as a sports club for the west of England, the existing building being incorporated as a nucleus. Messrs. Richardson and Gill, FF.R.I.B.A., are the architects.

Houses, Hughtown, Isles of Scilly.

The accompanying plans, elevations, and detail show a fragment of the rebuilding schemes now in operation in the Isles of Scilly. The work is being carried out by the building department of the Duchy of Cornwall. Messrs. Richardson & Gill, FF.R.I.B.A., of London, are the architects.

Sketches in Devonshire.

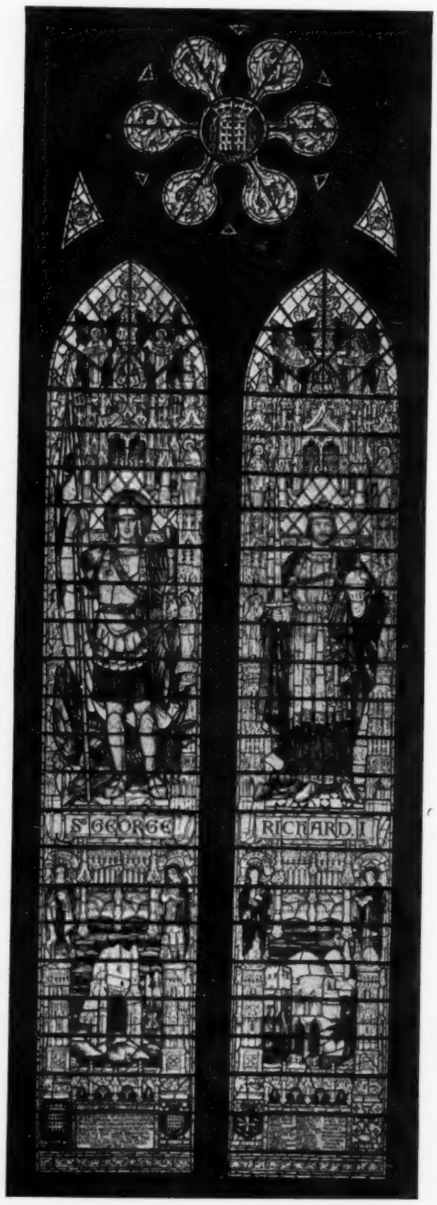
The late J. D. Sedding used to say what a splendid place the west country was for "crib" as a refresher for the architect. It is certainly specially interesting for the wealth of quaintness and spontaneity of detail in the work of the old craftsmen. The telling effects of architectural form is shown in our Devonshire sketches this week. Probably none of them were evolved from the architects' plans as we know them to-day, yet how pleasing is the effect of soaring height in the buttressed tower above the little cottage at Stoke Fleming; what a sturdy breadth there is in the old farmhouse at Stokenham, and how pleasingly picturesque are the other subjects, all teaching something of natural and unaffected simplicity.

"Archerton," Postbridge, Devon.

This house was built originally in 1840; it then consisted of the ground floor and one story in the roof, which was of thatch. The house was destroyed by fire in 1916. The new building partly incorporates old stem walls which escaped damage, but the plan is quite different. The design is a free adaptation of the Regency style treated in a modern way. Messrs. Richardson & Gill, FF.R.I.B.A., are the architects and Mr. John Halfyard, of Princetown, the contractor.

St. Luke's Church, Maidenhead.

This chapel, which abuts against the north wall of the chancel, consists of three bays, and its construction involved the demolition of the original vestry. The roof of the chapel, which continues the line of the general aisle roof of the church, has oak purlins, wall plates, and principals. The open boarding is coloured blue, while the rafters are white, with stencilled patterns on their faces. It is intended to carry the colour down, with a coloured and gilt reredos, screens, and panelling, at a later date At present this object is effected by a rich stained-glass window made by Mr. A. K. Nicholson, of 105, Gower-street, representing in the centre light the Madonna and Child, with St. Luke and St. Martin in the side lights. Beneath this is a blue and gold dossal, the work of Miss Beckh, of 20, Thurloe-place. The altar is of fumedoak, and was made by Messrs. Bowman & Son, of Stamford. The floor covering is in light and dark green squares of Ruboleum, divided with black bands. The effect is quiet both in colour and sound. The chapel is lighted by three windows on the north, as well as the east window. These have simple tracery heads without cusps. The artificial lighting is obtained by linolites, which are fixed on the face of the rafters, immediately east of the principals, and is invisble except from directly beneath or from the east. Arches have been formed between the chapel and the chancel, giving interesting views from the nave, looking across the chancel. The chapel is to be consecrated by the Bishop of Buckingham on October 21. The general contractors were Messrs. J. K. Cooper & Sons, of Maidenhead; and the architects are Messrs. Cheadle & Harding, of 2, New Square, Lincoln's Inn, W.C. 2.



Window at Westminster Abbey.

[This window is by Messrs. James Powell & Sons (Whitefriars), Ltd., and was recently unveiled by H.R.H. the Prince of Wales. It is in memory of officers and men of the Queen's Westminsters who fell in the war.]

Porch of Plympton St. Mary's Church.

The porch of Plympton St. Mary's Church (three miles from Plymouth) is rather uncommon in its design, having two stories over the porch itself, and the walls are carried higher than the parapet of the side walls of main building. The church is of the Transitional period. The actual date of the building is uncertain, but it is evident that the porch was built in the latter part of the fifteenth century, as it shows some distinct features of Perpendicular work. The porch is a fine example of the well-proportioned though rude work which is so characteristic of Devonshire. The walls are executed with local granite in courses varying from 6 in. to 18 in. in depth and crowned with a battlemented parapet of the typical Perpendicular style 38 ft. high. It has two substantial and bold projecting buttresses with three moulded and weathered offsets in each and finished with a pinnacle (41 ft. 10 in. from the ground), which is also a typical feature of fifteenth century work. Just under neath the cornice there is a large canopied niche finely ornamented and crowned with a crocketed finial which contains a much-decayed figure representing the Almighty Father sustaining Our Lord on the Cross, whilst in the niche below is depicted the Annunciation. A sculptured figure of the Blessed Virgin Mary stands in one on the east and that of the Angel Gabriel in the one on the west side of the window The doorway is a good specimen of Perpendicular work containing the typical carved spandril and a moulded jamb which is continued around the arch. The interior of the porch contains a holy water stoup, and three richly carved canopied niches over the inner doorway, and the ceiling is also richly groined with fan vaulting, with carved boss at junction of the ribs. The centre boss is larger than any of the others and has the Crucifixion depicted on it, and on the four sides of it are other smaller ones carved with figures of angels.

The drawing is by Mr. W. W. Hitchins.

MEETINGS.

WEDNESDAY. *October* 3.

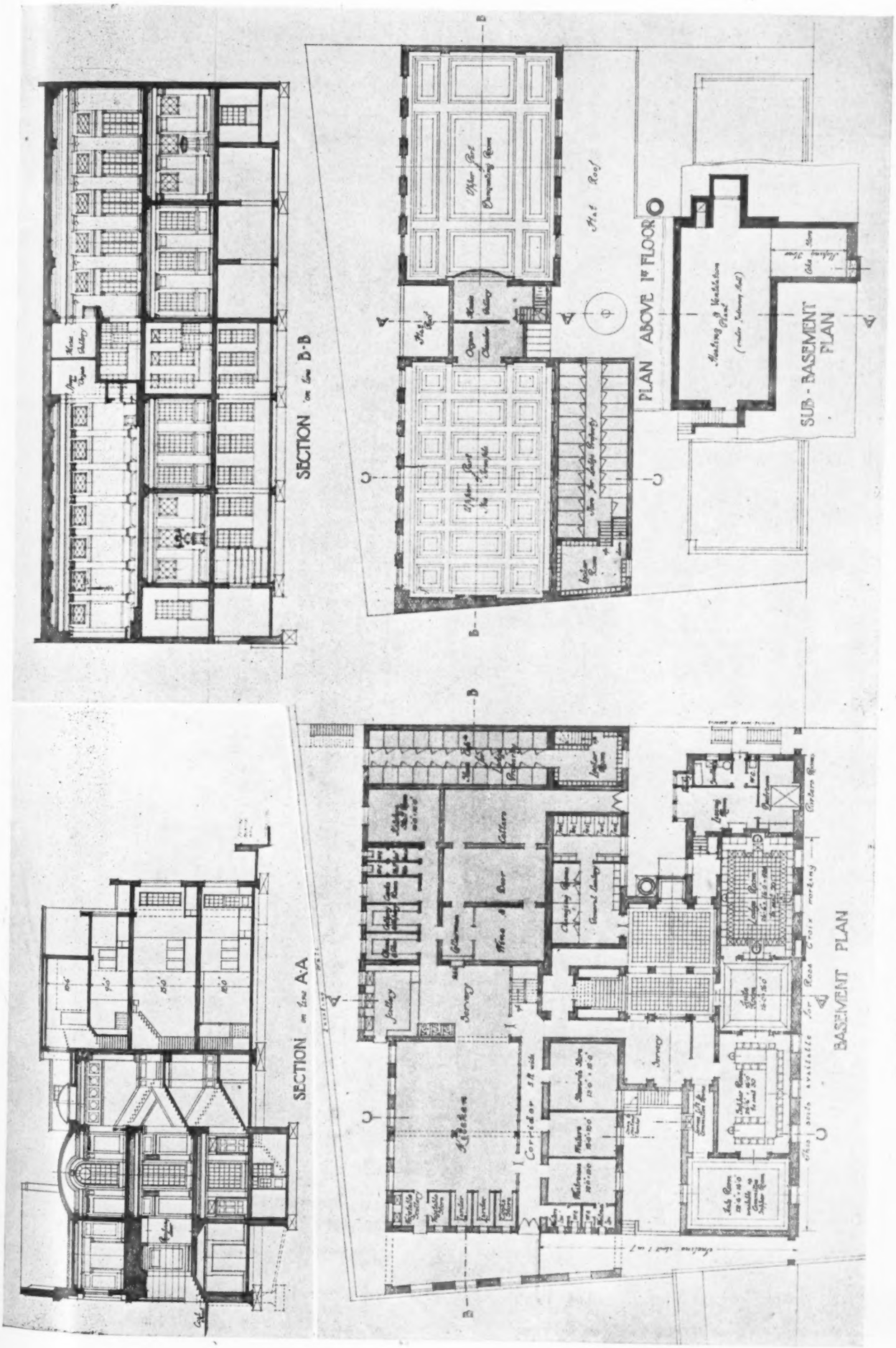
Institution of Sanitary Engineers.—Opening Meeting. At the Cabin Restaurant, Caxton House, Tothill-street, S.W. 1. 7.30 p.m.

L.C.C. Central School of Arts and Crafts.—Sir Banister Fletcher, F.R.I.B.A., on "History of Architecture: Introductory Survey." At Southampton-row, W.C. 1. 6 p.m.

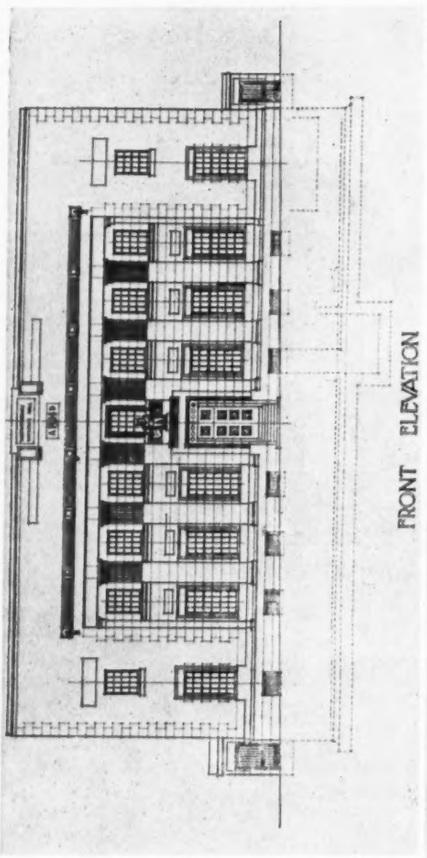
Essex Archæological Society.

The Essex Archæological Society visited St. Osyth Priory by permission of Brigadier-General K. Kincaid-Smith, K.C.B., for their September excursion. The Priory, which is a few miles from Clacton-on-Sea, was founded early in the twelfth century by Richard de Belmeis, Bishop of London, who established there a priory for Austen Canons on the supposed site of a nunnery founded by St. Osyth, daughter of Frithwald, King of East Anglia. The great gatehouse, built late in the fifteenth century, is one of the finest examples of its class in the country. The clock tower and the beautiful oriel window were built about 1527 by Abbot Vyntner. In 1553 Lord Darcy converted the buildings into a house and Queen Elizabeth twice visited the Priory as his guest. Some years ago many parts of the ancient buildings were restored.

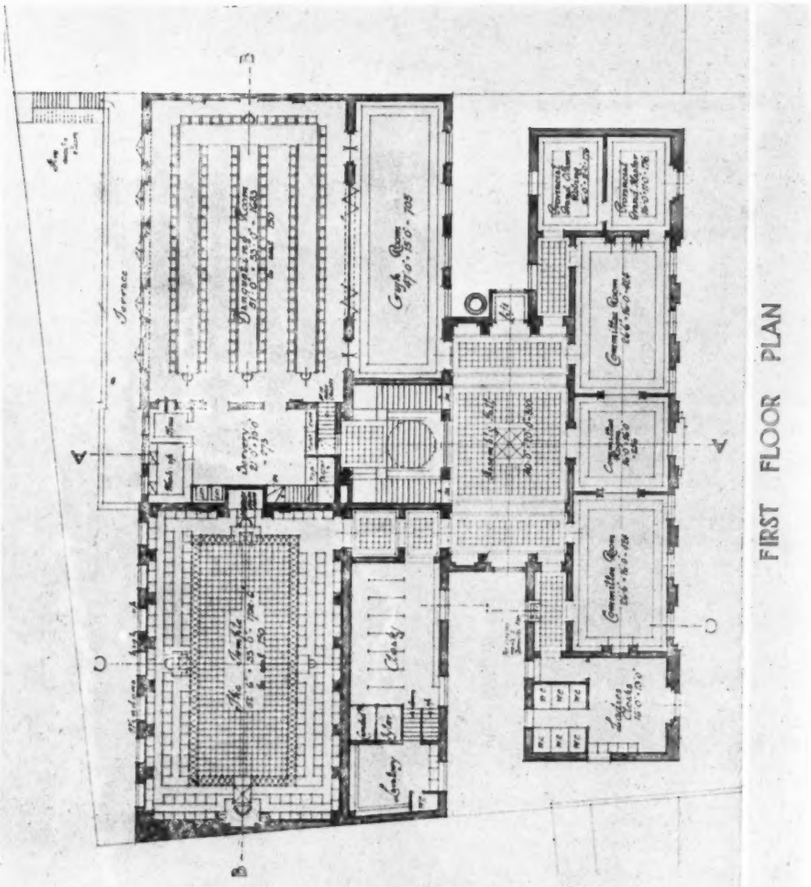
The party also inspected St. Osyth Church, dating from the twelfth and thirteenth centuries, and passed on to the neighbouring town of Brightlingsea. The church of Brightlingsea was built in the thirteenth century, and the lofty west tower was erected in the fifteenth century. The ancient house known as "Jacobs," in High-street, Brightlingsea, built in the fifteenth century, was also visited. The house has good timbered ceilings.



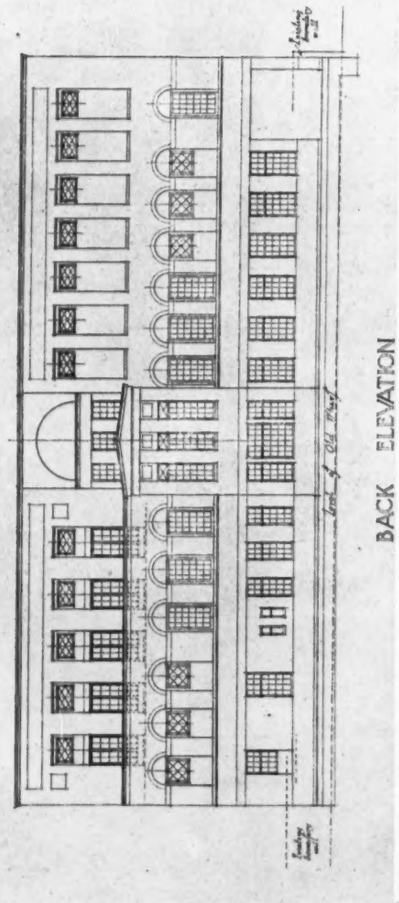
Birmingham Masonic Temple Competition. Design placed first. By MR. RUPERT SAVAGE, F.R.I.B.A. (*See p. 489.*)



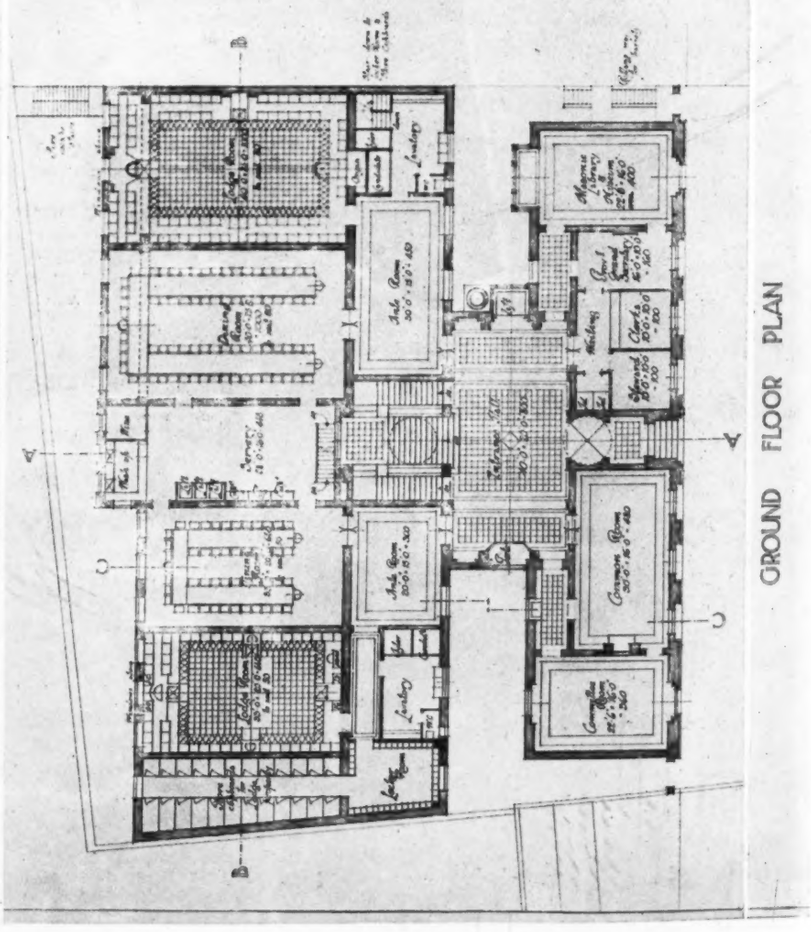
FRONT ELEVATION



FIRST FLOOR PLAN



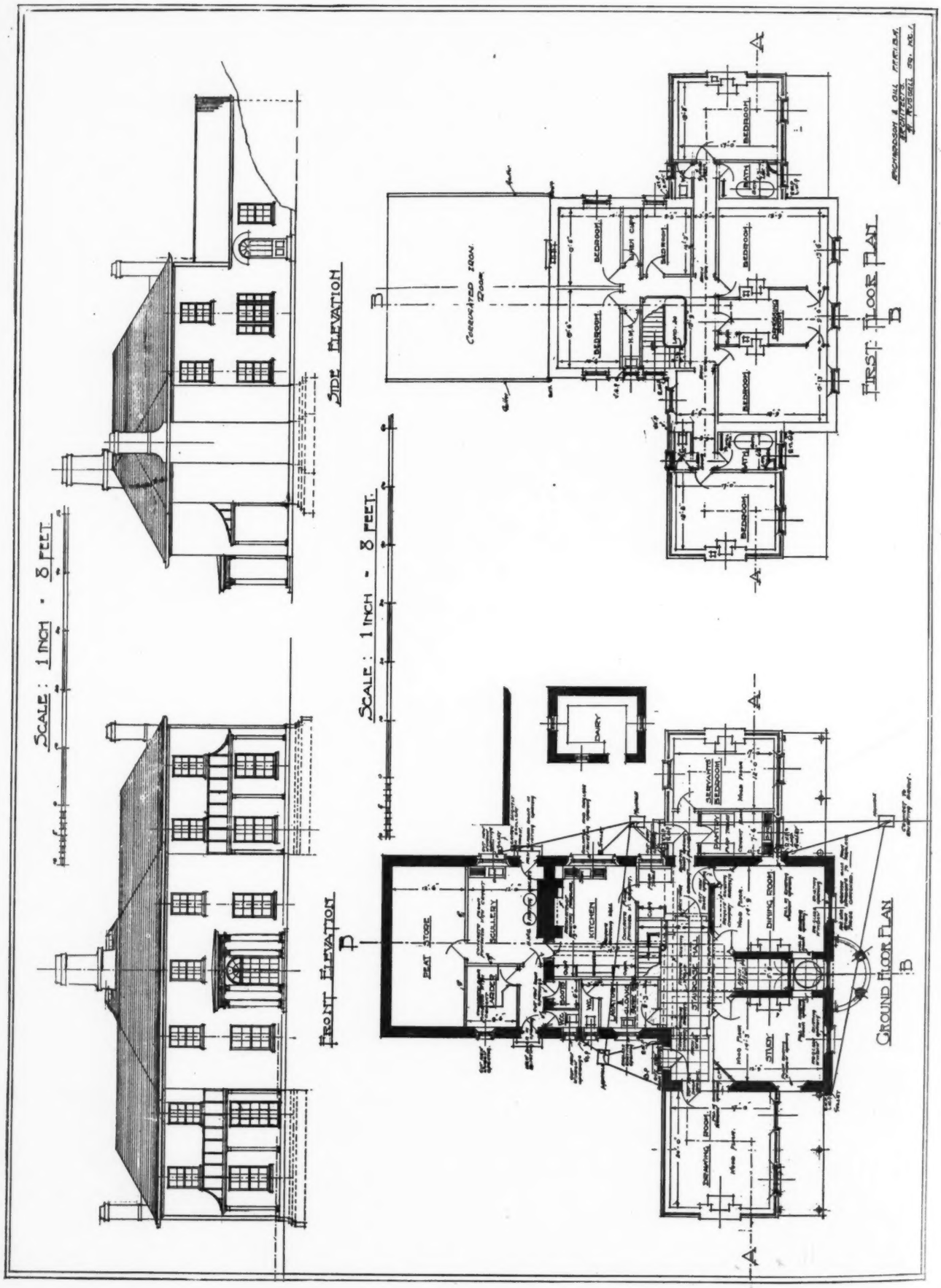
BACK ELEVATION



GROUND FLOOR PLAN

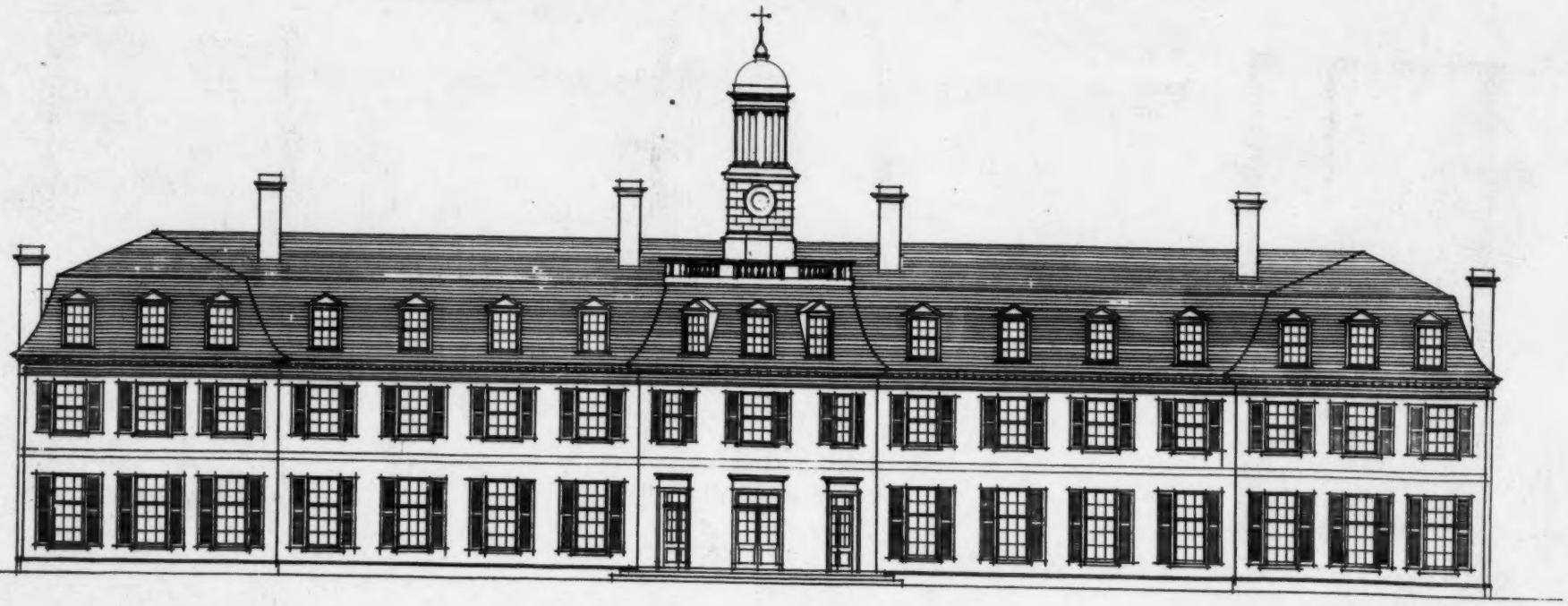
Birmingham Masonic Temple Competition. Design placed first. By Mr. RUPERT SAVAGE, F.R.I.B.A. (*See p.* 489.)

Birmingham Masonic Temple Competition. Design placed first. By Mr. Rupert Savage, F.R.I.B.A. (*See p.* 489.)

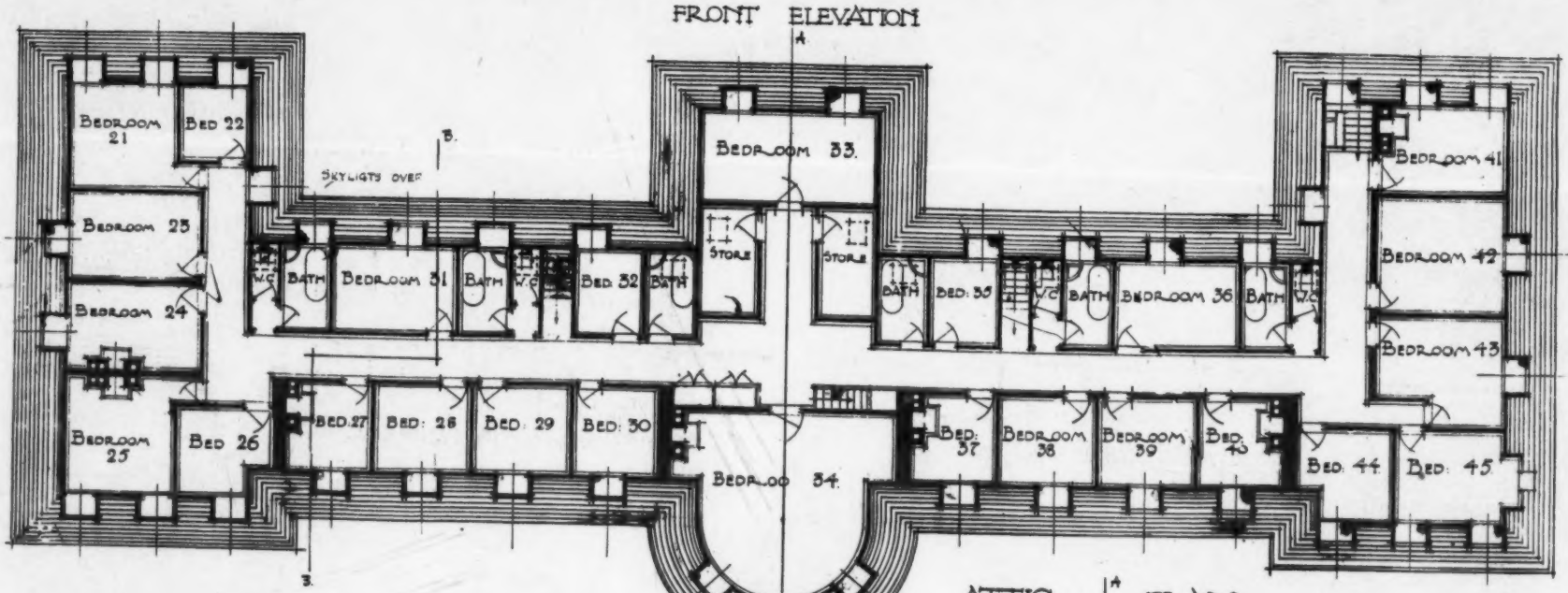


"ARCHERTON," POSTBRIDGE, DEVON. Messrs. Richardson & Gill, FF.R.I.B.A., Architects.

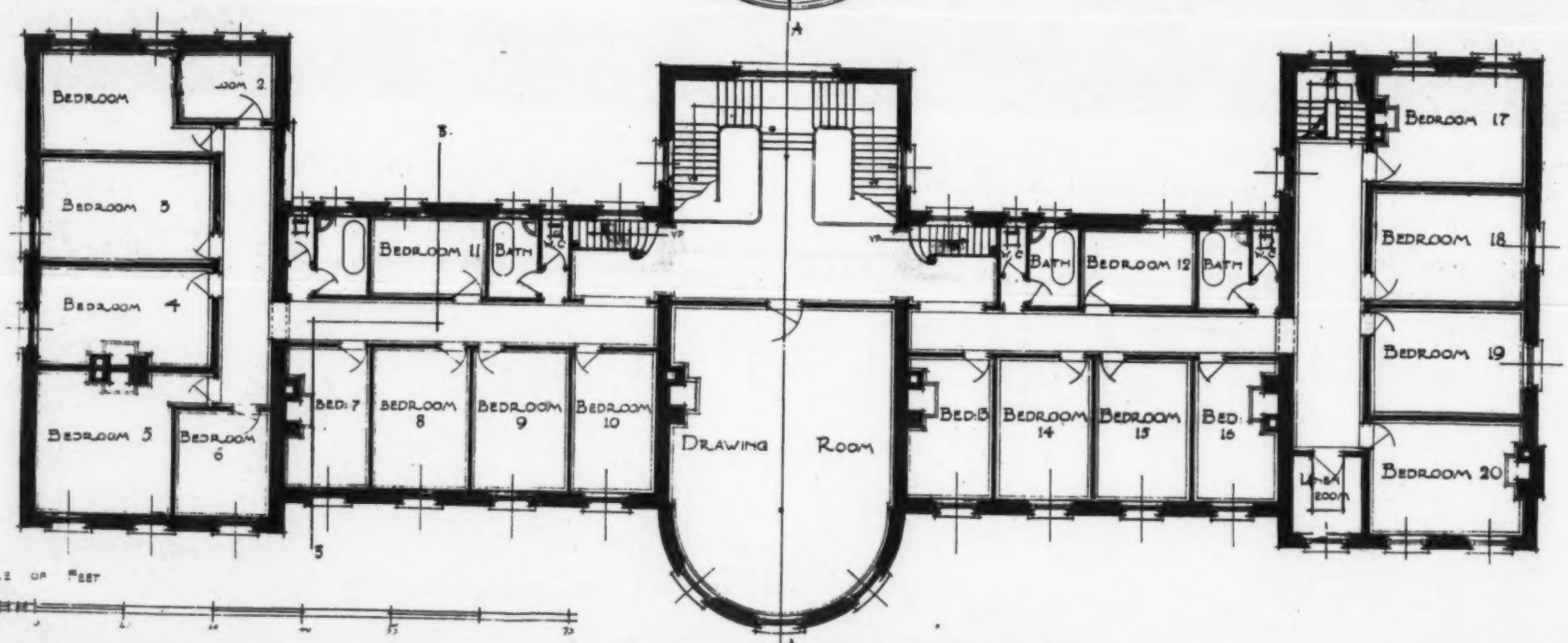
"ARCHERTON," POSTBRIDGE, DEVON. MESSRS. RICHARDSON & GILL, FF.R.I.B.A., Architects.



FRONT ELEVATION



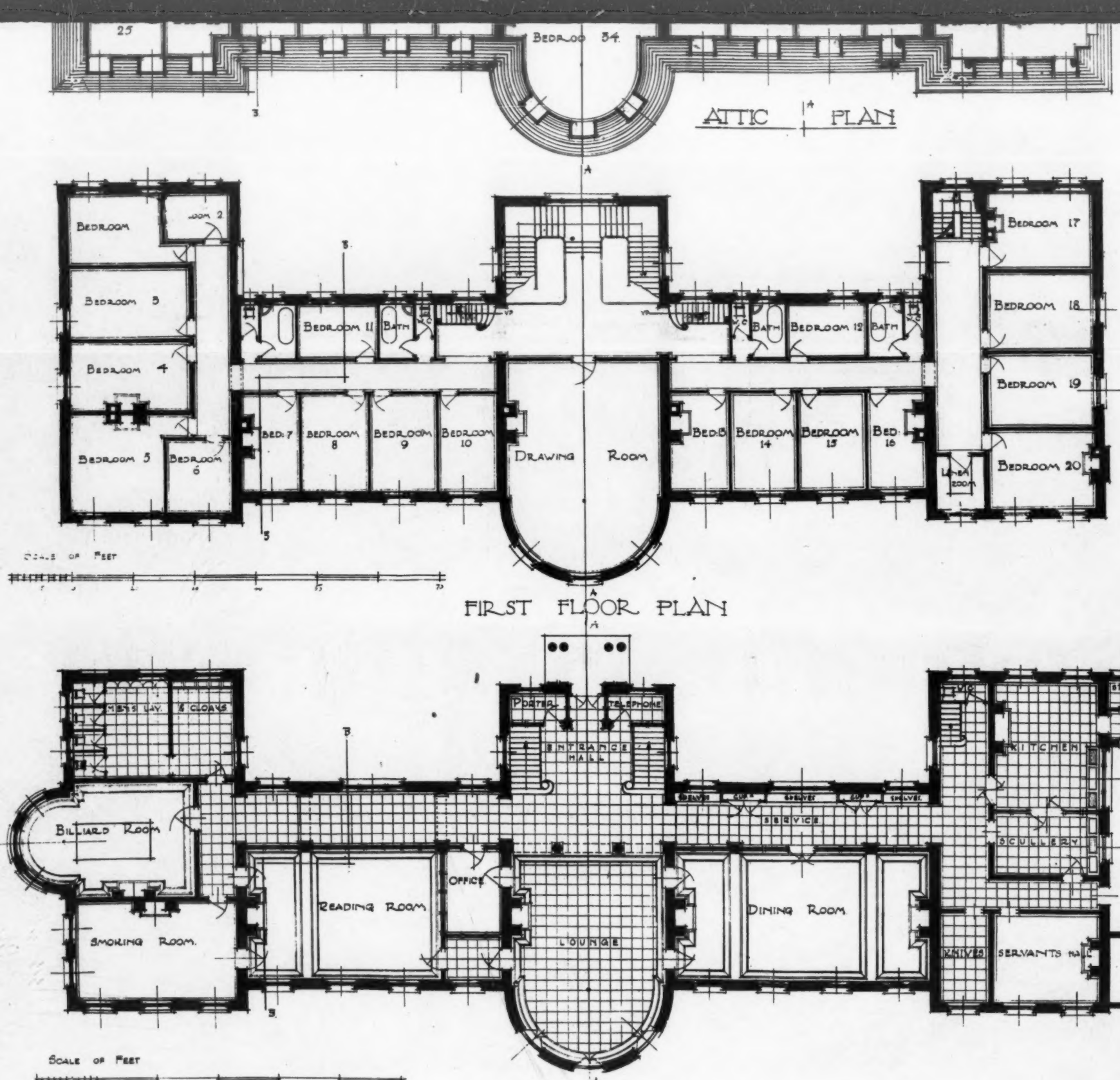
ATTIC PLAN



SCALE OF FEET

FIRST FLOOR PLAN

THE BUILDER, SEPTEMBER 28, 1923.

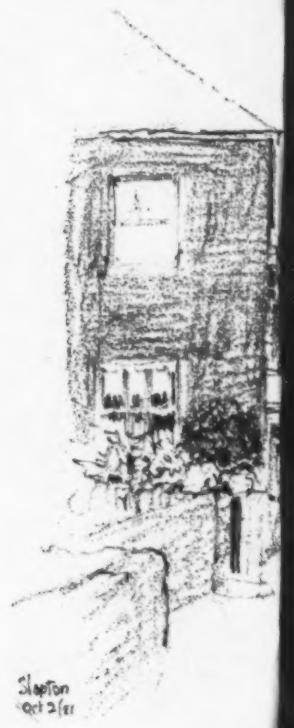


PRINCE HALL, DARTMOOR, DEVON. MESSRS. RICHARDSON & GILL, FF.R.I.B.A., ARCHITECTS.

PRINCE HALL, DARTMOOR, DEVON. MESSRS. RICHARDSON & GILL, FF.R.I.B.A., ARCHITECTS.

Stoke Fleming

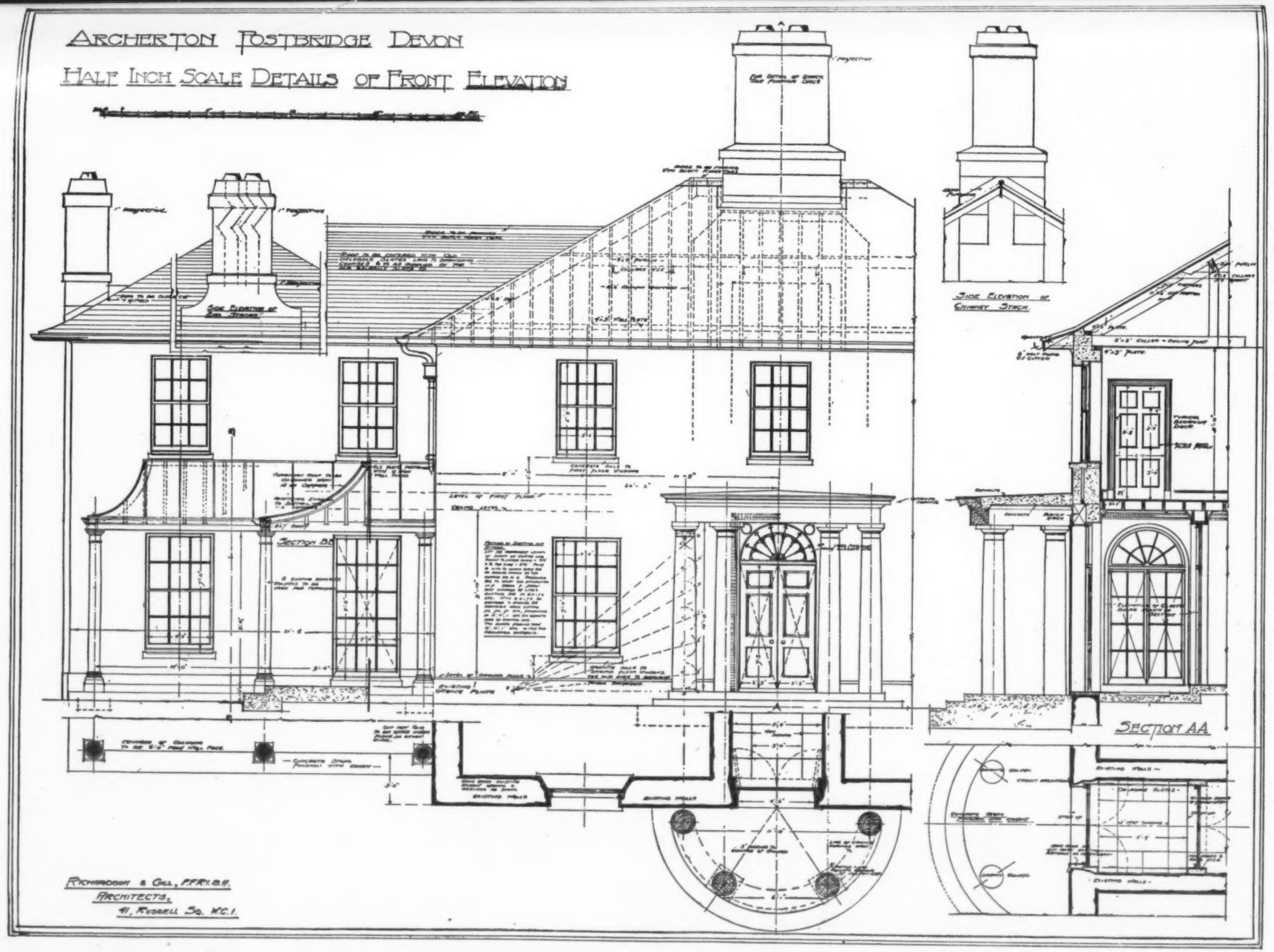
Hampstead



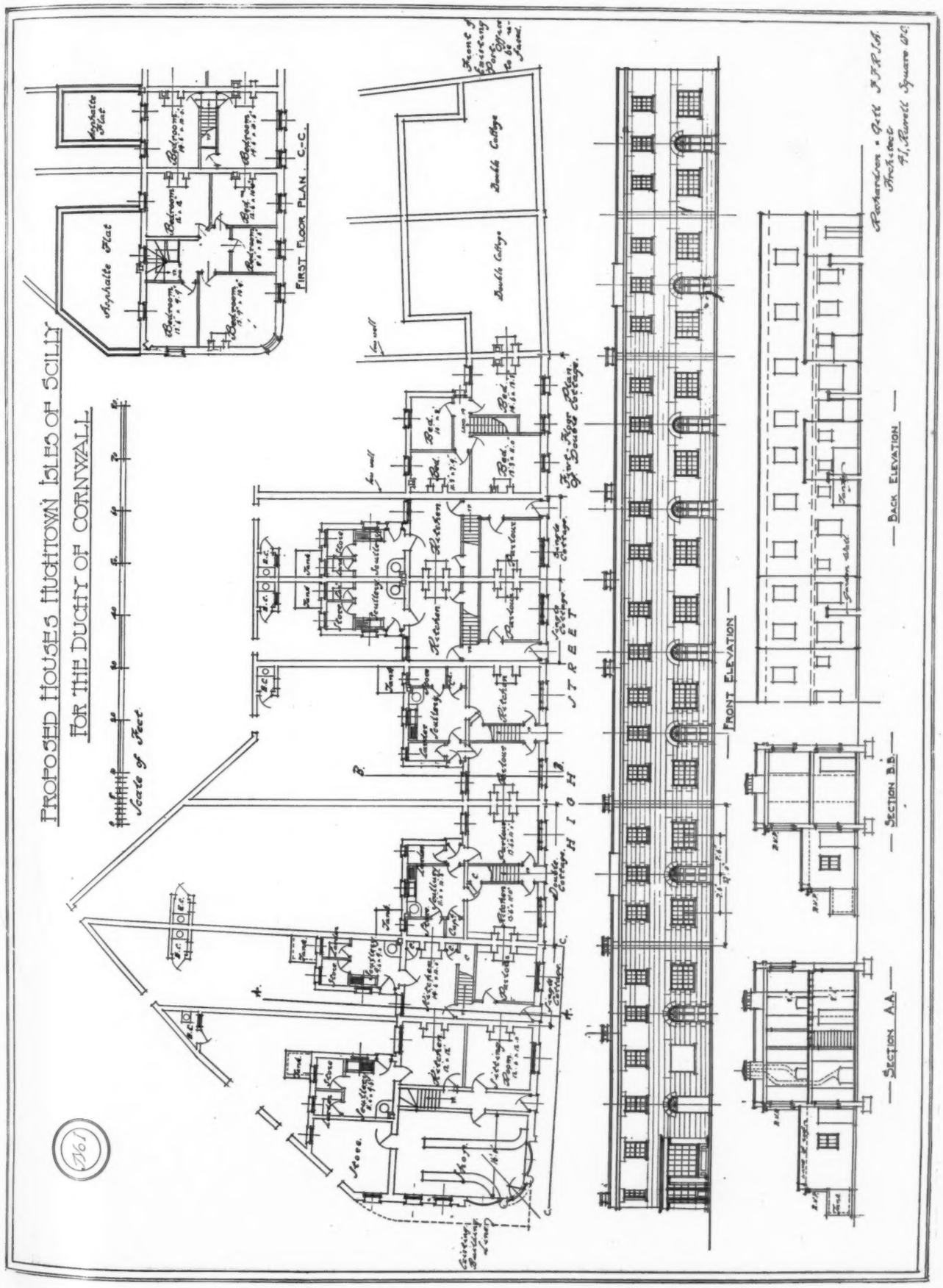
Stokenham

SKETCHES IN DEVONSHIRE. BY MR. T. RAFFLES DAVISON.

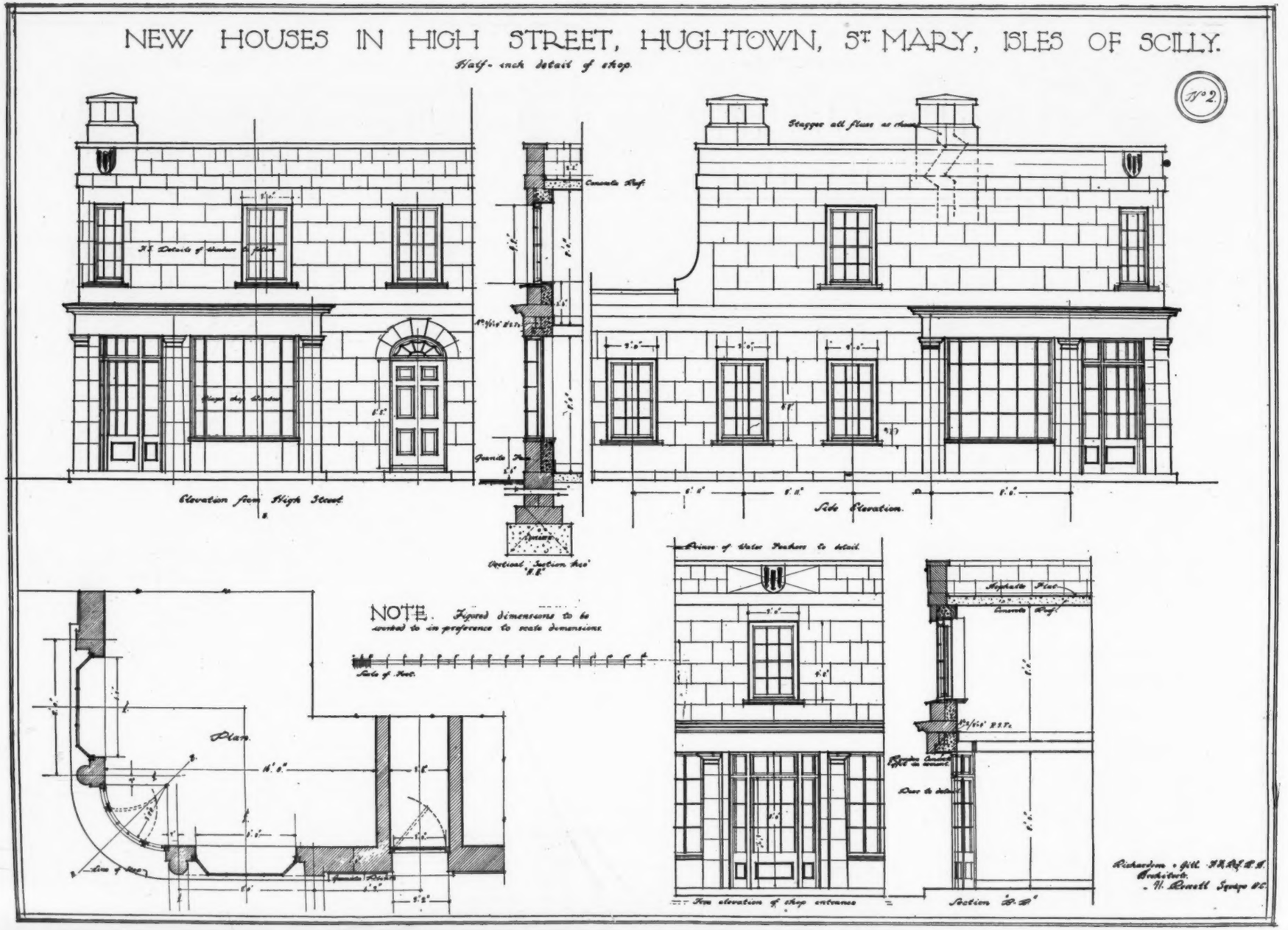
ES IN DEVONSHIRE. By Mr. T. Raffles Davison.



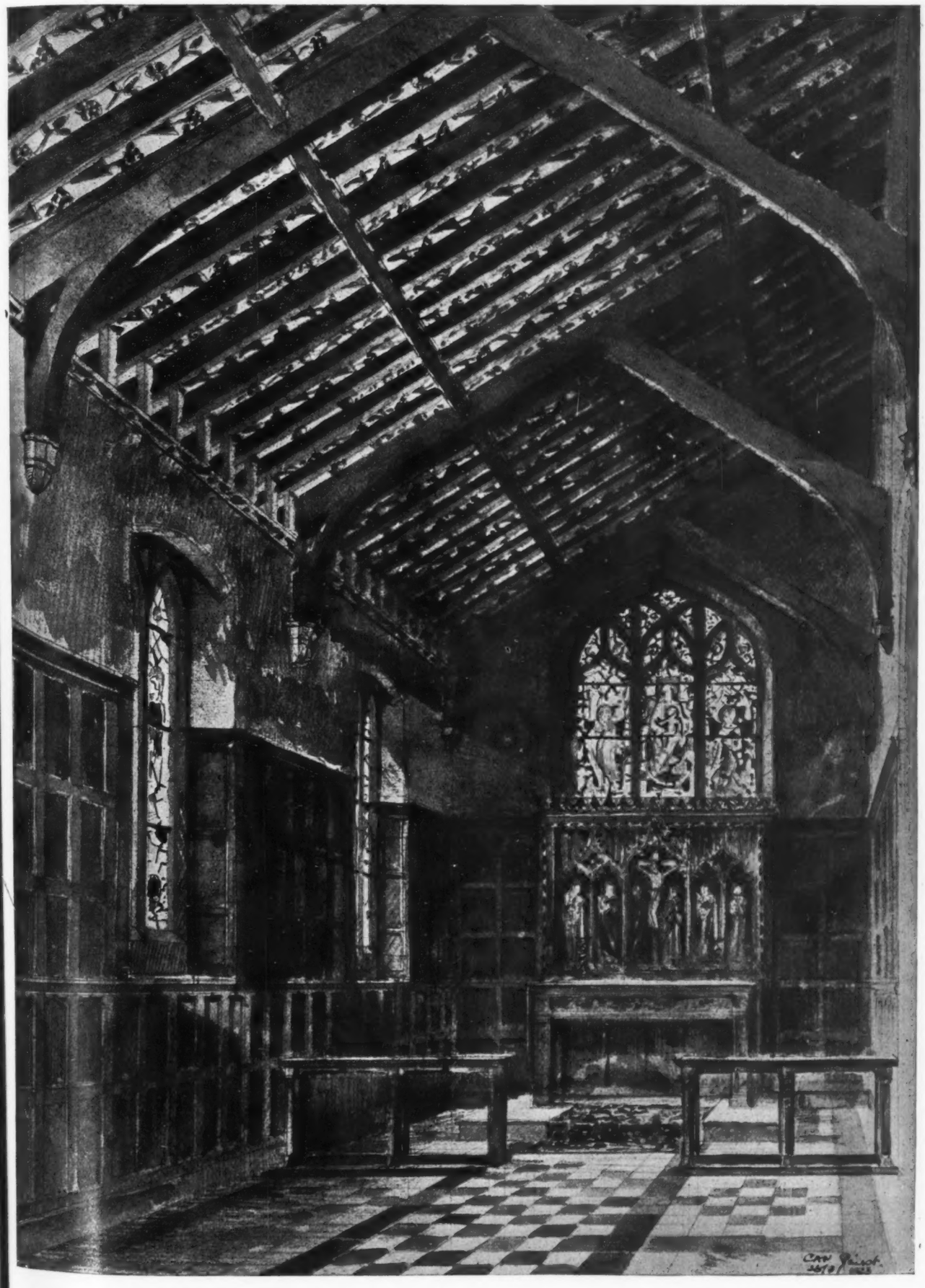
MESSRS. RICHARDSON & GILL, FF.R.I.B.A., Architects.


PROPOSED HOUSES HUGHTOWN ISLES OF SCILLY
FOR THE DUCHY OF CORNWALL
Scale of Feet
FIRST FLOOR PLAN. C.C.
Asphalte Flat
Bedroom
Bedroom
Bedroom
Bedroom
Bedroom
Bedroom
Double Cottage
Double Cottage
Front of Existing Portion to be re-roofed
Existing Building
Existing Building
Existing Building

NEW HOUSES IN HIGH STREET, HUGHTOWN, ST MARY, ISLES OF SCILLY.


Half-inch detail of shop.
No 2.
Elevation from High Street.
Side Elevation.
NOTE. Figured dimensions to be worked to in preference to scale dimensions.
Plan.
Section C.D.
Richardson & Gill FF.R.I.B.A. Architects. 11 Bonnell Square W.C.

MESSRS. RICHARDSON & GILL, FF.R.I.B.A., Architects. (*See p.* 482.)

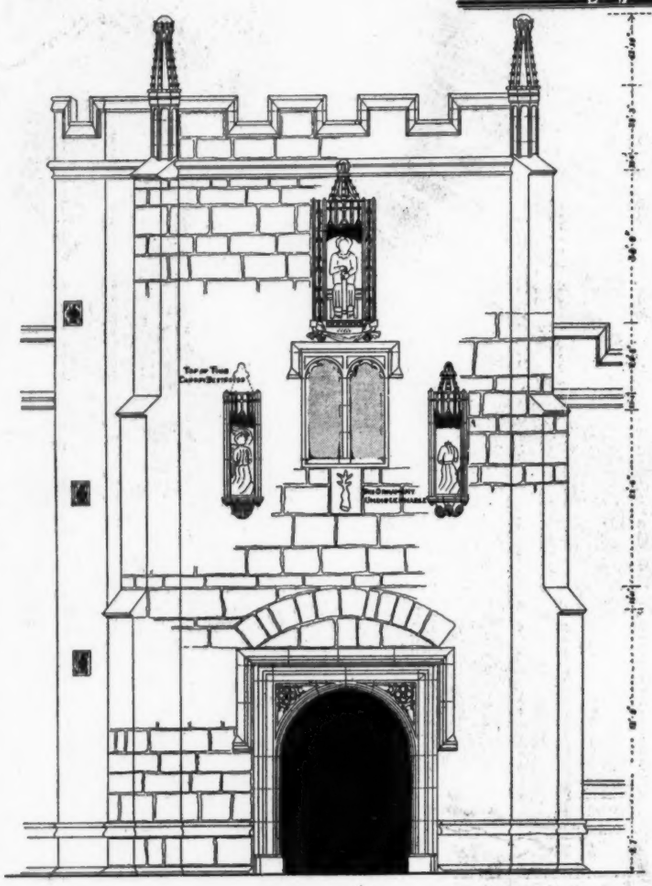


St. Luke's Church, Maidenhead. MESSRS. CHEADLE & HARDING, Architects. (*See p.* 482).

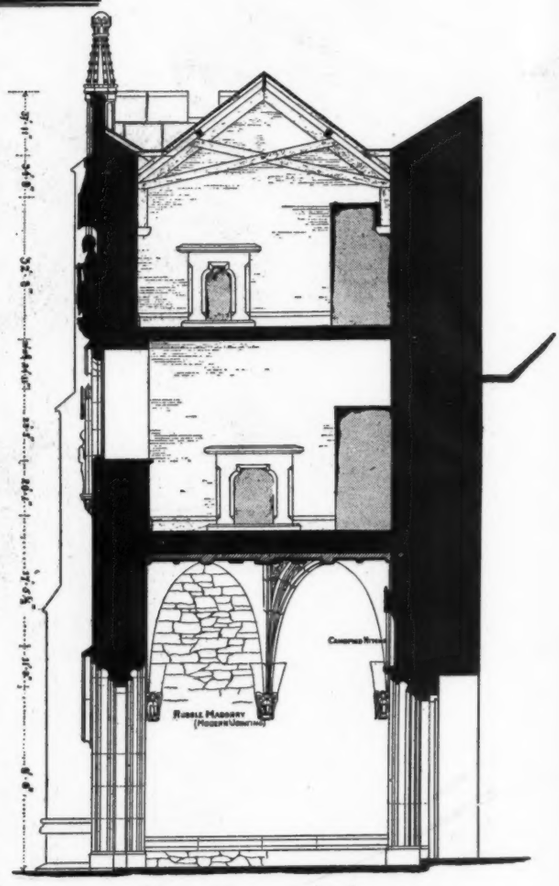
MESSRS. RICHARDSON & GILL, FF.R.I.B.A., Architects. (*See p.* 482.)

Plympton St Mary

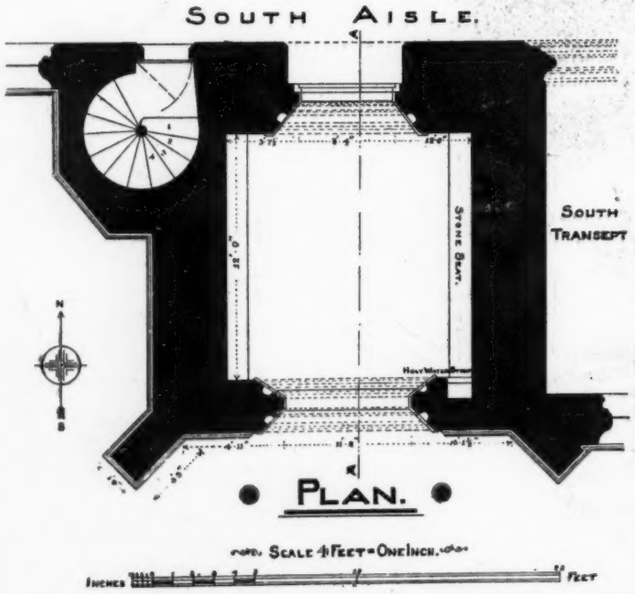
South Porch.



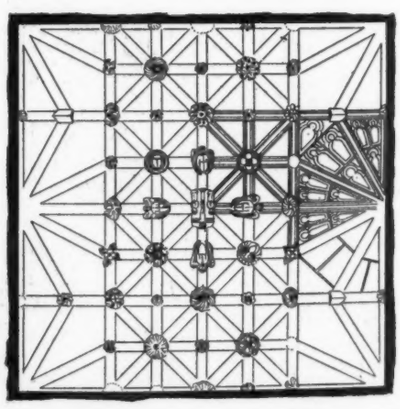
ELEVATION.



SECTION ON A.A.



PLAN.



PLAN OF VAULTING.

SCALE 4 FEET = ONE INCH.

SCALE FOR VAULTING.

From drawings by MR. W. W. HITCHENS. (*See p.* 482.)

MASONIC TEMPLE COMPETITION, BIRMINGHAM.

We give this week the design placed first in this competition by the Assessor, Sir Banister Fletcher, F.R.I.B.A., who, in his report, says :—

The author of design No. 3, to whom I award the first premium of £500, has been most successful in fulfilling the conditions and requirements, and has produced a straightforward and skilfully arranged plan. The basement contains the kitchen department with scullery, larders, stores, staff room, wine and beer cellars (close to side entrance) all conveniently placed with relation to a central servery with lifts and service stairs to the upper floors. This floor also contains the quarters for the resident porter, conveniently placed at the western entrance of site. The general lavatory with the dressing cubicles for brethren are in proximity to the main staircase. The lodge room to seat thirty, together with ante room and dining room, would require careful ventilation. The author has evidently considered that the general lavatory close to the lodge room would be sufficient, but there is ample room for lavatories in the ante room at the east end of the suite. A heating chamber is provided in the sub-basement.

The ground floor has a central doorway and a spacious entrance hall with passenger lift and porter's box, and with main staircase to the upper floor. Convenient to the hall are the Provincial Grand Secretary, Clerk and Steward, a common room and committee room well situated close to a service lift, and the masonic museum and library. The lodge room to seat eighty and the lodge room to seat fifty are both provided with ante rooms, lavatories, rooms for candidate, ample locker rooms, and store cupboards for lodge property. The dining rooms for these two lodges are provided with an ample servery with lifts from the general servery in basement.

The first floor contains an assembly hall with passenger lift, and three of the committee rooms close to service lift; also Provincial Grand Master and Provincial Grand Officers' robing room. A ladies' cloak room and lavatory is provided, and, if necessary, could be conveniently used in conjunction with the committee room on ladies' nights. The lodge room to seat 150 is of good proportions, with ante room, cloaks, and lavatory, and with locker room and store for lodge property in a mezzanine floor. The banqueting room is of ample size, excellently arranged with large servery having two doors, and with lifts to kitchen servery in basement. The author has not adopted the suggestion that this banqueting room should be joined up with a smaller dining room, but has provided a crush room which would be capable on occasions of seating 70 additional persons.

The front elevation is extremely simple and distinctly original, somewhat reminiscent of an Egyptian pylon, with plainly treated wings, flat pilasters, and a dignified central entrance. It presents a very reposeful appearance, quite in harmony with the purpose of the building, and I feel confident that it would make an extremely satisfactory façade, of which Warwickshire Masons would have reason to be proud. The back elevation has been well handled and possesses considerable merit. I have read the report submitted with this design, and think the remarks with regard to the railway tunnel, heating, ventilating, &c., are well considered, and that the work could be carried out within a reasonable margin of the total of £72,371.

The author of design No. 5, to whom I award the second premium of £300, has sent in a symmetrical and well-arranged plan. The accommodatoin is provided on the ground, first, second and third floors, with a mezzanine over part of the ground floor, and there is a small basement. This design has many excellent points with two internal areas giving light to entrance and inner hall, and main staircase enclosing lift. The Provincial Grand Secretary is placed near the entrance adjacent to the clerk, with the general lavatory and dressing-room for brethren at the one end, and ladies' lavatory at the other end. The entrance hall, main staircase, and inner hall are all of ample size and well lit. The lodge rooms have ante rooms well arranged with respective dining rooms *en suite* on the same floor, all somewhat large and thereby adding to the cost of the building, as do also the connecting corridors. The lavatories for the lodge room to seat 150 are on a mezzanine, which is not such a convenient arrangement as when adjacent to the ante room. The serveries are well planned and of good size; they are connected by lift and stairs to the kitchen on the third floor, and could each be provided with two doorways into the dining rooms which they serve. The kitchen store-room accommodation could, however, be advantageously increased.

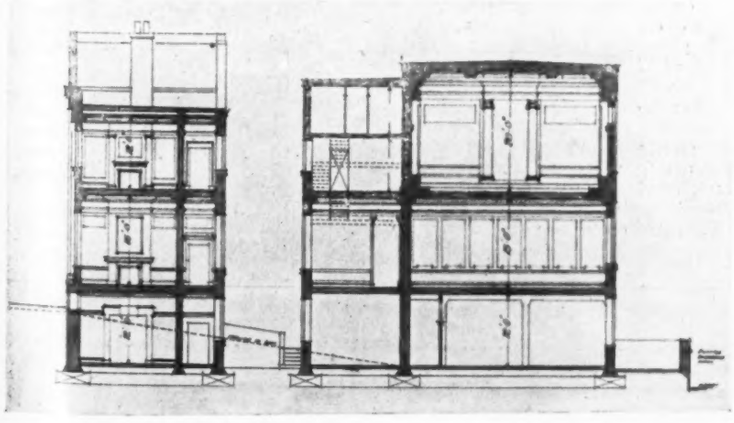
The elevation to Broad-street is effective and restrained, with a good rusticated basement supporting a range of free-standing Ionic columns and surmounted by a low attic, while the back elevation has been well handled and possesses considerable merit. The author's report deals satisfactorily with the question of cost, and in my opinion the building could be carried out with a reasonable margin of his total of £79,512.

The author of design No. 1, to whom I award the third premium of £200, has sent in a very compact plan, largely controlled by placing the lodge rooms diagonally alongside each other in pairs on the ground and first floors. The accommodation is provided on the basement, ground, first and partly on the second floor. The Provincial Grand Secretary, Clerk and Steward are conveniently placed by the entrance hall, and the main staircase is kept centrally, close to the front wall, and with two lifts gives easy access from the entrance to the upper floors. The lodge rooms are arranged *en suite* with their respective dining rooms, but the lodge rooms to seat 80 is the same size as the lodge room to seat 150, and is, therefore, too large. It could, of course, be easily reduced by throwing the western bay into an ante room and including the present ante room with the hall. The service room on the ground and first floors serves in each case two dining rooms, and being inadequate for the purpose, would require reconsideration. The ladies' lavatory is approached through a room marked "Members' Common Room or Ladies' Room," but this could easily be avoided by placing the common room, where it would be of greater service, on the second floor beyond the committee rooms over the dining room to seat 30, or in the place of the two committee rooms facing the front, and it would be easy to add two committee rooms over the dining room to seat 30. The kitchen department in the basement is ample and well arranged, and the wine distribution room is conveniently planned in connection with the servery and lifts. The elevation to Broad-street is a well-balanced and extremely satisfactory composition in the Renaissance manner, and dignity is obtained by the central Ionic portico carried through three stories which would give fine architectural character to the building. The report submitted gives a good statement as to the scheme, and I consider that the building could be carried out within a reasonable margin of the total cost of £74,163.

As I have already stated, many of the remaining designs show considerable merit, and the Temple Committee is to be congratulated on the response to their invitation for competitive designs. All of these have defects of some kind; some are too large and wasteful or extravagant in character, or in having improper lighting; others have bad service accommodation to the dining rooms, an inconvenient kitchen arrangement, improper linking up of lodge rooms with ante rooms and dining rooms, etc.

[The names of the authors of the premiated designs are given on p. 476.]

Fountain Mask, Arles,
From a sketch by Mr. G. Norburn.



Birmingham Masonic Temple Competition: Design Placed First.
By Mr. Rupert Savage, F.R.I.B.A.

LEGAL SECTION.

NOTES ON CURRENT CASES.

Building Estates and Approaches.

THE recent case, Cory *v.* Davies (1923, 2 Ch. 95) illustrates the difficulties that may arise on building estates as to mutual rights of way. About the year 1857 the owner of a large freehold estate at Cardiff was developing it as a building estate. Part of the estate consisted of a rectangular piece of land bounded on the north by an occupation road, on the south by a public highway, the Newport-road, on the east by a street called East-grove, and on the west by another street, West-grove. This piece of ground was divided into three rectangular building plots fronting on the Newport-road, and extending back to the occupation road and three contemporaneous leases were granted of the three lots. The three lessees were connected or related, and the three leases were identical in form except as to the names and parcels. The leases were for 99 years. The lessee's covenants included one that within one year dwelling houses were to be erected on the land and boundary walls and fences, and the buildings, boundary walls, &c., were to be repaired and maintained. The leases demised all ways and easements, and did not except or reserve the same.

The plots thus conveyed were laid out as follows:—Seven houses were erected in all, forming a terrace fronting on Newport-road, and set back about 40 ft. from it, and in front the highway was shut off by a continuous wall. In this wall there were two sets of gates at each end of the terrace, forming an access to a drive which was made in front of the houses and which, being only 9 ft. in width, was only available for a carriage to enter at one gate and leave by the other, as there was no sweep in which to turn a carriage. This drive formed the only means of access to the front of the houses, none of which had a separate tradesmen's entrance. The only other access to the Newport-road was a narrow gate made in about the year 1869 by the occupier of the middle house for foot passengers. In October, 1920, the defendant had bought the house at the easternmost end of the terrace. This house had been assigned in July, 1878, by one of the original lessees to a Mr. Williams, and that assignment did not contain any reservation in favour of the assignor of the right to use that part of the drive which fronted the house assigned or of the right to use the eastern gates.

The defendant had locked the eastern gate, and prevented the other occupiers of houses in the terrace from using the drive and gates opposite his house, and the action was brought by the owners of all the other houses, claiming a declaration that they were entitled to a right of way over the drive and through the gates and an injunction restraining the defendant from locking the entrance gate opposite his house. The gates had never been locked, except that between 1896 and 1900 the gates at the east end had been locked, and in 1919 the gates at the western end had been locked, but this, as the Court found, had been done for the mutual convenience of the owners and occupiers of the houses to ensure greater privacy for whom keys had at all times been available.

Before turning to the judgment it may be mentioned that the plans on the original leases were only ground plans in bare outline, the houses then not having been erected, or the plots laid out, but the above facts were obtained from plans which came from the custody of the successors in business to the original lessor's architect and surveyor. The position, as pointed out by the Court, was a curious one, for if the defendant was entitled to lock the gates at his end of the terrace, the same would be the right of the owner of the house at the other end of the terrace, and the result would be that the owners of the intervening houses would be cut off from vehicular access to the Newport-road. These persons could not make any new access to that road for two reasons—first, because they were bound by their covenants to maintain and repair the boundary wall, and secondly, because even if they could make an entrance through that wall, there was no space to make it suitable as an approach for vehicles, and in these circumstances the Court intimated that common sense seemed to demand that the Court should, if possible, find some legal origin for the right openly enjoyed by the plaintiffs for so long a time.

The inferences drawn by the Court from the facts proved at the trial were that in 1856 the three lessees, having ascertained from the lessor that he was willing to let them have building leases of the three plots, verbally agreed amongst themselves that they would lay out the plots as a terrace in the manner described, and after having obtained the lessor's approval to such laying out would procure the lessor to grant them building leases in accordance with their plans and specifications. The Court also inferred that the boundary wall and the gates were commenced to be built before the leases were actually granted, and that the three lessees shared the expense of erecting the front wall and the gates. The right had been enjoyed for over sixty years, but, as the Court laid it down, "It is well settled that a lessee cannot acquire a right of way over the land of another lessee under the same lessor either by prescription at common law, nor under the doctrine of a lost grant, nor by prescription under the Prescription Act, 1832 (Wheaton *v.* Maple & Co., 1893, 3 Ch. 48; Kilgour *v.* Gaddes, 1904, 1 K.B. 457)."

The Court, however, then held that the circumstances of the present case were such that, in order to give effect to the common intention of the parties, the law would imply the appropriate grants and reservations in the three contemporaneous leases, and this common intention would be given complete effect to if there were implied in the lease of each plot a grant to the lessee of the right during the term to use the drive and entrance gates and a reservation to the lessor and to his lessees as owner and occupiers of the houses erected on the other two plots of the right to use the drive and entrance gates so far as such drive and gates were erected on the demised plot.

The power to make this implication was derived by the Court from the judgment in Pwllbach Colliery Company *v.* Woodman (1915, A.C. 634), as the Court held that this case came within the second of two classes of cases dealt with in that judgment where easements may impliedly be created, and where it was stated that this class of case does not depend upon the terms of the grant itself, but on the circumstances under which the grant was made and that the Court will readily imply the grant or reservation of such easements as may be necessary to give effect to the common intention of the parties to the grant with reference to the manner or purpose in and for which the land granted or some land retained by the grantor is to be used, provided, however, that it is an essential condition of the implied creation of such easements that the parties should intend that the subject of the grant or the land retained by the grantor should be used in some definite and particular manner and that it is not enough that the use intended by the parties might or might not involve that definite and particular use.

The Court held that neither the absence of a reservation in favour of the lessor nor the fact that the leases contained some particular reservations in favour of the lessor prevented the grants and reservations being implied, and the case formed an exception to the general rule laid down in Wheeldon *v.* Burrows (12 Ch. 31). That general rule is that if a grantor intends to reserve any right over the tenement granted it is his duty to reserve it expressly in the grant. In this case, however, the Court held the three leases were really parts of one transaction and the easements were only required for the beneficial enjoyment by the lessees of the three plots. The lessor in granting the three leases containing covenants to lay out the three plots in the form of a terrace was only giving effect to the arrangement made between the three lessees and, therefore, this was not a case where the lessor or anybody deriving title under him by virtue of a subsequent grant was claiming the benefit of an implied reservation in favour of the lessor for his own benefit, and in these circumstances the Court should not allow the general rule to stand in the way of implying the appropriate grants and reservations, to give effect to the common intention of the parties to the leases.

It will be remembered that the case, Hansford *v.* Jago (1921, 1 Ch. 322), which we noted in *The Builder* Legal Section, April 29, 1921, has application to this point as to implying a grant of right of way, and that case was relied upon amongst others by the Court. It was argued that, as the lessor was no party to the arrangement made between the lessees, no grant by him or reservation in his favour could be implied, but the Court as to this point held that the lessor, by approving the plans and specifications and by making the lessees covenant to erect the wall and entrance gates according to such plans and obliging them to maintain them, had made himself a party to such arrangement. But the learned Judge, in case it was held that the Court had not the power to hold that the necessary grants and reservations could be implied, dealt with the case from another point of view. He held that the several lessees under the same lessor had power as between themselves by express grant to create such easements limited to the duration of the term of the lease and that, although the grants were not under seal, there was part performance to take the case out of the Statute of Frauds.

Two other points were dealt with: First, that the defendant had bought the house without notice of the existence of an easement, and, therefore, he could not be bound by implied reservation or by a verbal agreement between the original lessees. The answer to this, the Court said, was that the nature of the premises should have put him on inquiry as to the existence of any easements. On this point we may refer our readers to the case, Yandle & Sons *v.* Sutton (*The Builder*, September 29, 1922), where this question was discussed. The last point was that, as against some of the plaintiffs who were executors of the person assigning to the defendant's predecessor in title, no reservation was made in the assignment, and any claim by the executors to the right would be a derogation from the assignment; but this was also decided in the plaintiff's favour, for reasons we need not detail.

This case is technical, but highly instructive, as it shows the pitfalls to be avoided by those accepting leases on a building estate and entering into common arrangements. The reservations and grants should be contained in the deeds and then all such questions will be avoided.

Before parting with this case, we may remind our readers of another case which we noted in our Legal Section, November 24, 1922, Attorney-General v. Hodgson. There a house had been erected fronting a public park, and a by-law of the Corporation prohibiting motor traffic had resulted in one means of access to the house by this kind of traffic being cut off.

Workmen's Compensation: Onus of Proof.

A recent decision of the House of Lords in the case, Moore & Co. *v.* Barkey (*Weekly Notes*, July 28) is of importance, as it bears on the question of onus of proof under the Workmen's

Compensation Act. The claim was for compensation by the dependants of Barkey, who had been employed in the appellant's colliery. On July 17, 1921, Barkey had gone down the pit with a night shift foreman named Gillespie to assist in clearing gas away. Gillespie had a Glennie oil safety lamp which discloses the presence of gas by burning low or going out, whilst Barkey had an electric lamp. By the Coal Mines Act, 1911, section 34, subs. (1) iii, "a safety lamp shall not be unlocked except at an appointed lamp station. . . . by a competent person appointed in writing by the manager for the purpose, nor except in the case of electric hand lamps shall it be relighted except by such a person." Both men were killed by an explosion, and on exploring the scene of the explosion the Glennie lamp was found to be unscrewed and a box of matches was found between the two parts of the lamp.

The arbitrator found that the explosion was due to an attempt to relight the Glennie lamp in breach of the regulation. Gillespie had the control of the lamp but the two men were working together, and on these findings he refused compensation. The Second Division of the Scotch Court of Session had reversed this finding and the House of Lords affirmed this decision, on the ground that the arbitrator was wrong in placing the onus on the claimants, for there was a strong presumption that the accident arose out of the employment of the deceased man, and the onus lay upon the employers to prove that the deceased had added a peril to his employment in contravention of a statutory regulation.

Memorial Window for a House at Purley. Designed by MR. REGINALD HALLWARD.

[This window, of which the central three lights only are shown in the photograph, the whole being composed of five lights, was executed for the staircase of a private house. The figures are silhouetted on a silver-white plain glazing and are without background, surrounded by a border of varying tints of blue and green. The central figure represents "Loving Kindness," holding a basket full of varied flowers—the strongest note of colour—and giving gifts to the children. The centre top-light contains the dedication, with little angels playing instruments on either side. In addition to the metallic oxides, enamel colours are used in the painting of the glass, such as the embroidered patterns on the dress, &c. The plain glazing surrounding the figure portions and to which the two outside lights are limited, contain quarries scattered through them with floral patterns. The whole window is an excellent example of modern craftsmanship.]

HEATING, LIGHTING, AND VENTILATING.

ELECTRICAL INSTALLATIONS.

THE ARCHITECT AND THE BUILDER.

BY "M.I.E.E."

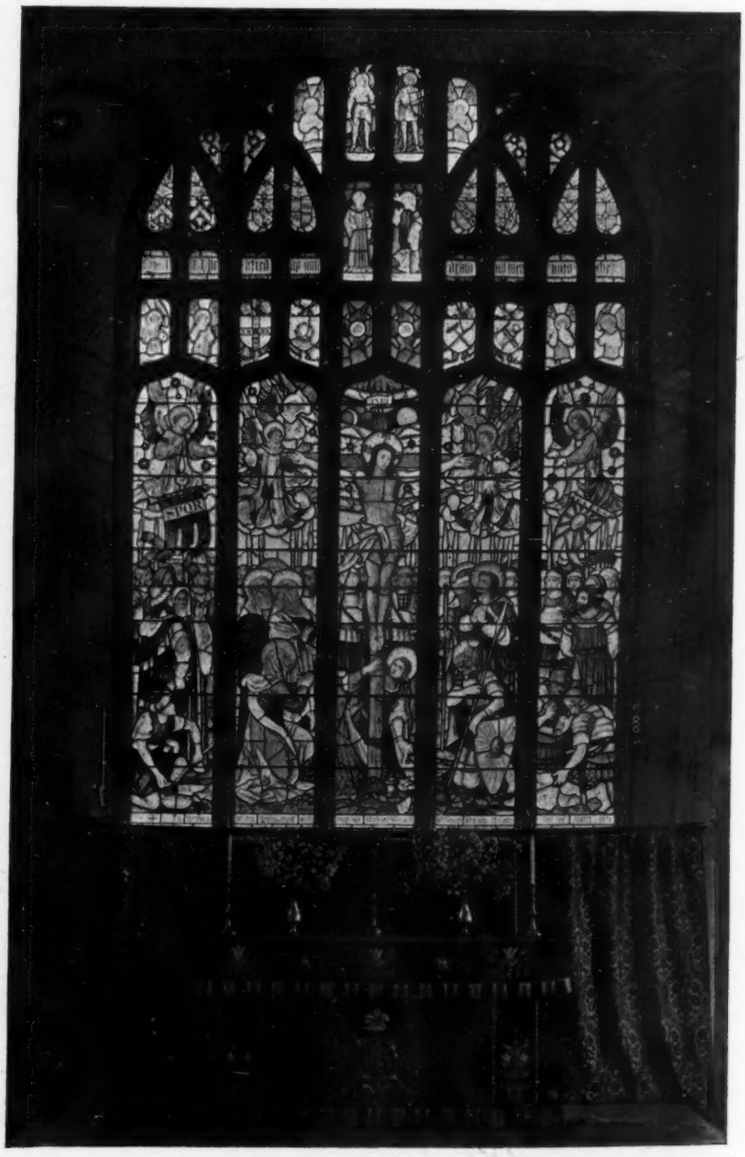
IN the electrical equipment of homes, factories, shops—whatever it may be—there are four parties concerned: the architect, the builder, the electrician, and the owner. Obviously, the last named, who has to foot the bill, would be the gainer if the other three could work together with a view to keeping down the cost of the work; but in how many cases do we find effective co-operation between even two of the three? Only in the case of large and important buildings, in which the adoption of electricity for lighting and power is a matter of course, do we find provision made, more or less efficiently, for the execution of the electrical work at the proper time and in the best way—or, in recent times, when a local authority decides to provide for the use of electricity in a housing scheme. Yet the fact that for illumination electricity is nowadays without a rival, and that its use is rapidly extending for cooking, for occasional heating in dwellings, offices and shops, and for an infinite variety of other purposes, cannot be ignored. Nevertheless, it is common practice still to design and erect houses and other buildings and to finish them ready for occupation before the installation of electrical equipment is so much as considered. Usually they are piped for gas and water, apparently because from time immemorial it has been customary to make such provision; but the times have changed, and modern needs should be met in modern buildings from the first.

The owner depends upon the architect to advise him and to adopt the most up-to-date practice; the builder must act upon the instructions of the architect, and the electrician comes in a bad third, to make good the omissions of his predecessors on the job, and to overcome the difficulties with which he is confronted as best he can. It is to the architect, therefore, that the appeal must be addressed, for he should give the subject his close consideration.

Dealing first with illumination, it would be too much to expect the architect to be an "illuminating engineer" and to devise a complete scheme in detail for this purpose; but he is compelled to deal with the matter in respect of daylight, at least, and as he is solely responsible for that class of illumination, he must necessarily be familiar with the broad principles by which it is governed. Since he is charged with the design of a building which shall be habitable and suitable for its purpose, surely he ought to take into account not only the daylight hours, but also those during which artificial illumination will be necessary and make the proper provision for it in the first instance. The mode of illumination—direct, semi-indirect, diffused or concentrated—and the quantity of light required, measured in lumens, for average conditions should fall within his purview, and in a building which has claims to architectural beauties he should specify and approve the design of the fittings. By providing ducts for the wiring in the walls and ceilings he can go farther and fix the exact positions of the lamps; but in important cases of this class the collaboration of a trained illuminating engineer is almost indispensable. On no account should such matters be left to the discretion of the contractor.

But to equip a building only for electric lighting is a mistake. The innumerable benefits derived from a supply of electricity render it desirable that ample provision should be made in the first instance for their enjoyment. The applications that we have in mind fall into two classes: those in which the electrical apparatus is permanently fixed, and those which involve the use of movable appliances. Under the former head are included electric lifts, cookers, water heaters, &c., all of which call for specially heavy wiring Their positions can be determined before the work is commenced, and even if the building is not actually wired at the time, suitable ducts should be provided in the walls, with outlets at appropriate points, to enable the wiring to be done at minimum cost and without damage to walls and floors. It will be found that a very few of such ducts will suffice to give access to every story at trifling cost. The main thing is to provide for the vertical runs of cable from floor to floor—the rest is easy. Much damage to floors can be avoided by the simple expedient of screwing instead of nailing one or more of the floor boards lying near the centre of the room or corridor. These facilities being provided, it is surprising how much wiring can be done without disturbance to decorations, &c.

Under the head of movable appliances fall radiators, suction cleaners, irons, fans, kettles, standard lamps, and a host of minor accessories. With the possible exception of the first named, none of these requires heavy conductors—even a three-kilowatt radiator at the usual pressures needs nothing larger than 7/22 S.W.G., whilst the smallest conductor permissible for lighting circuits will readily carry any of the others. To supply devices of this class, at least two wall sockets should be fixed in each room. Here, again, vertical ducts from basement to roof are necessary, these ducts also carrying the cables for lighting purposes, bells and telephones; but, as the sockets should be fixed on the skirting boards, no further provision than the ducts and the screwed floorboards need be made for them.



East Window: Church at Anglesey.
Designed by MR. J. CLEMENT BELL.

An important point may be mentioned in connection with the use of electric radiators. Where these are used there is no necessity whatever for coal fires and chimneys in bedrooms or even in small offices. Hence a very material economy in building work can be made—sufficient, in fact, to cover not only the cost of wiring the building throughout, but also to pay for no small part of the electrical apparatus installed. Ventilating ducts, of course, should be provided; but these can be included in the thickness of the wall, and the abolition of chimney breasts and mantelpieces increases the useful floor area of the rooms. It is not yet generally realised that, in spite of the supposedly high cost of heating with electricity, it is not an uneconomical proposition when properly carried out, if due allowance is made for the value of the cleanliness, saving in labour, longer life of decorations, and unrivalled convenience resulting from its adoption.

A point which calls for mention is the provision of proper accommodation for main switches and fuses, meters, and distribution boards. Suitable positions for the latter can readily be foreseen, and recesses should be provided so that they can be sunk flush with the surface of the wall, in line with the ducts previously mentioned. Under the usual conditions, when electrical work is carried out as an afterthought in a building already completely finished and plastered, the cost of sinking the boards, &c., into the walls is prohibitive, and the consequence is that various items of the installation are obtrusively prominent and unsightly excrescences.

The subject of this article has by no means been exhausted; indeed, the writer has barely touched the fringe of it, but it is hoped that the important position that electricity occupies in an up-to-date building and the urgent necessity for making provision for its use *ab initio* may be more fully realised by the architect, with the result that under his instructions the builder will be enabled to provide for its economical installation and the electrical contractor will be brought on the job at the right time, to find that "cutting away and making good" is reduced to the minimum and that his work is already half done.

HOT-WATER SUPPLIES AND HEATING.—I.

THE following is the first of a series of brief articles, by a hot-water engineer, dealing with simple systems of supply—boilers and indirect methods of heating, combined heating, hot-water supply systems, and central heating—treated in a practical manner:—

Hot-Water Supplies.

The Englishman is nothing if he is not, shall we say as a mild form of expression, conservative! Little progress has been made along the right lines; and although many devices and appliances are now on the market, devices which will lead to great improvements in our domestic and other supplies, their adoption is very slow indeed. He is taught at school to say that the best steel comes from Sheffield, and that the best of everything else is produced in some English town. But if he travels he gets the right perspective. Not that we have not the appliances on the market: many appliances by British firms which, if applied to the production of hot water, regulation of supplies, etc., can result in nothing but improved conditions and efficiency of the heating apparatus. Mr. B. R. Wingfield, Ph.D., M.I.E.E., in a paper read at the sessional meeting of the Institute of Heating and Ventilating Engineers on January 12, 1923, on "Automatic Regulation in Heating Installations" (and commenting on a paper read by Mr. Herbert Jones in 1912) stated: "I am sorry to say that a great deal of what Mr. Jones said eleven years ago as to the scanty attention the subject of automatic control has received in this country is even now only too true." Notwithstanding the fact that in the U.S.A. hardly a single heating plant is installed without some sort of automatic regulation, automatic heat and temperature control has hardly made any progress in this country. Mr. Wingfield stated further that, having had frequent opportunity to discuss the matter with consulting engineers and contractors, he was invariably met by some such remark as "Doubtless such regulation is very nice, but our clients or customers (as the case may be) would never go to the expense involved"; or "Yes! we should like to propose it, but there are so many in for the job," etc. The writer goes on to say that he believes the fault lies chiefly with the engineer and contractor, who always prefer the line of least resistance, but that if they could be convinced of the advantages obtained they would be better prepared to popularise automatic control. Yet it is an easy matter to prove the added convenience of automatic control, improved conditions of comfort, and substantial saving in working cost which will easily justify the necessary initial outlay of such, and other units of an up-to-date installation.

There is a deal of truth in the assertion of the American lady who, in the *Times*, stated that for all our love of hot water we were incapable of producing it for domestic use. In the average medium-sized house, both in London and in the country, the hot-water supply is totally dependent on a boiler in the kitchen range which, even at its best and most extravagantly nourished moments, cannot supply a large family with a succession of hot baths.

The chief cause of this condition is that the small back boiler has been expected to do the impossible. The power of a small fire back boiler is very limited: the prevailing mistaken idea has been that such a boiler uses waste heat. The amount of waste heat absorbed is very limited, and where such a boiler exists extra fuel must be put on to supply the British thermal units which are racing away through the circulating pipes on their way to the hot store vessel. Indeed, with such a boiler, waste occurs by heat escaping into the mass of iron and brickwork, flues, etc., when fired simply for heating water, and when no cooking, etc., is needed.

War Memorial Window, South Transept, High Pavement Chapel, Nottingham.
Designed by MR. J. CLEMENT BELL.

For economical running it is gradually becoming recognised that the independent boiler, whether heated by solid fuel or by gas, is often more economical as a proposition for heating water for domestic purposes, even for small properties. To meet this demand there are many small boilers now on the market which are designed to give a maximum heating area exposed to the fire, for conveying the heat to the water and at the same time, by coloured mica doors and plated fittings, give a certain aspect of comfort, suitable for kitchen or living room of small properties. Many builders, and even architects, have very little knowledge of the modern requirements of hot-water and heating apparatus: to give a working knowledge it will be necessary to make a short survey on the systems in vogue.

The Tank System.

One great cause of the failure of the hot-water supply apparatus, as pointed out and observed by many, including the American visitor, was the indiscriminate adoption of the "tank system." For ten, twenty, and thirty years back thousands of two, three and four-story buildings were fitted with this apparatus. Space will not permit a full description of all its failings, but briefly the hot store is necessarily fixed above the highest fitting. This entails that the main circulating pipes, "flow" and "return," must run the whole height, often including long horizontal runs, from the basement to the hot store, usually in the roof. Whatever heat from the little back boiler is imparted to the water, it is lost to an appreciable degree on the way; and, further, the tank is in a cold situation, thus assisting in the general loss. If by chance, or by covering the circulating pipes and tank with non-heat-conducting material, real hot water exists in the tank, it cannot be drawn off without being diluted with cold. A glance at Fig. 1 will show this. It was not realised until comparatively recently that when a hot "draw-off" tap is opened all water in the apparatus will commence to flow by the most convenient course to the open tap. The direction of the arrows shows that the hot water cannot be drawn off without being diluted with water from the colder parts of the system when the tap is open. This condition is not peculiar to tank systems, and may occur in other types if incorrect connections are made. Fig. 2 shows a modified type of tank system with the same disadvantages, except that the tank is in a warmer position and the circulation a little shorter. If the draw-off pipes were arranged as indicated by the "dash" lines, then it is very similar in principle to the cylinder system, except that a rectangular tank is used in place of the cylinder.

The Cylinder System.

The cylinder system has many advantages over the tank system; all draw-offs are, or should be, taken from off, or near, the crown of the cylinder. This provision en-

sures that only the hottest water, which naturally is near the crown of the cylinder, can be drawn off. In the event of the cold water from any cause being cut off, the cylinder and boiler cannot be inadvertently emptied, with the consequent risk of fracturing the boiler. The cylinder is fixed near the boiler. This ensures a minimum run of main circulating pipes; the cylinder is in a warm situation—both factors reduce loss of valuable B.T. units from the stored water. In Fig. 3 a typical apparatus for a small villa is shown, with a run of pipes marked on the drawing. On such a small scheme, and where the fittings are conveniently grouped in a position near to the cylinder, the secondary flow and return to the fittings is hardly necessary. The object of the secondary circulation is to provide good hot water right up to the draw-off. If the pipes to these draw-offs are taken as a single line, the stagnant water in the pipes has to be drawn off before hot water can be obtained. On all secondary circulations the pipes must be so inclined that the circulation is assisted, and that all air given off can automatically escape. The expansion pipe is taken off from the highest point, forming also a natural air vent. The drain cock, safety valve, and the fullway valve on the feed pipe are essential features for a properly equipped apparatus. It is often not realised that the outflow at the taps is dependent upon the power of the feed pipe, *i.e.*, the height of cold feed tank and the diameter of the pipe. For this reason the feed pipe must be large enough to supply any number of hot taps open simultaneously. The minimum size would be one inch. The diameter of the primary circulating pipes is determined by the size of the apparatus; for a small villa type in a hard-water district, 1¼ in. is the minimum diameter, and 1 in. in a soft water district. Secondary circulations, towel rails and coils, as shown, all entail extra work on the boiler, and in fixing these it is essential to provide sufficient boiler power (*i.e.*, area of boiler exposed to heat of fire) to cope with this extra duty. Too much stress cannot be laid on this point. In the past, one of the most usual mistakes made in hot-water fitting has been to provide

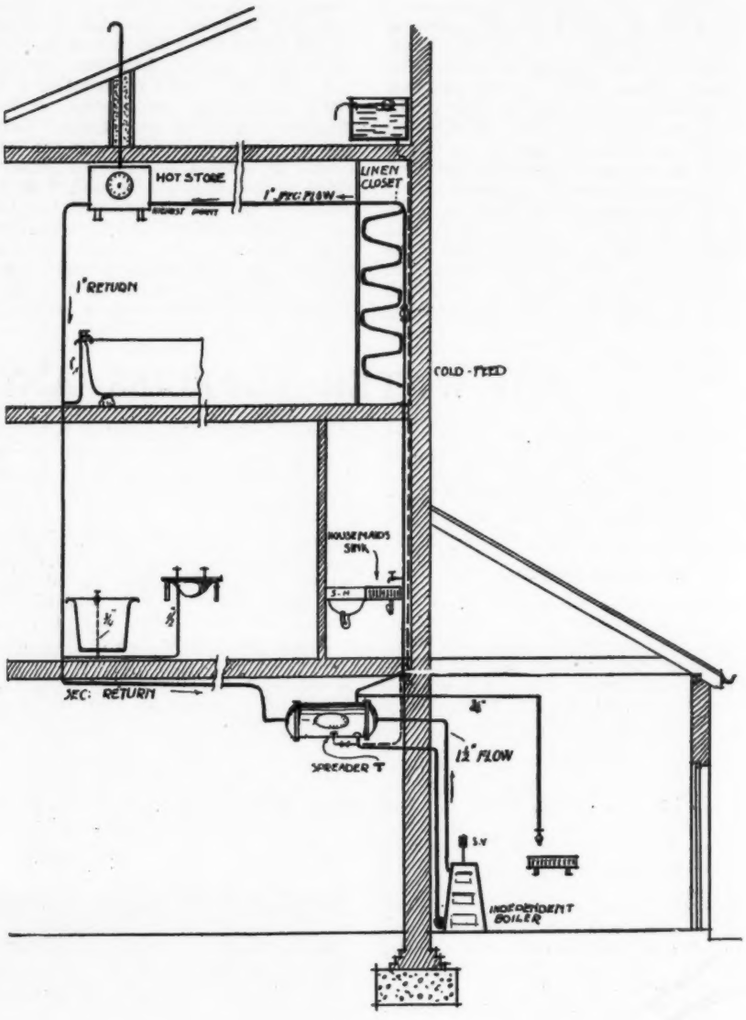


FIG. 4.

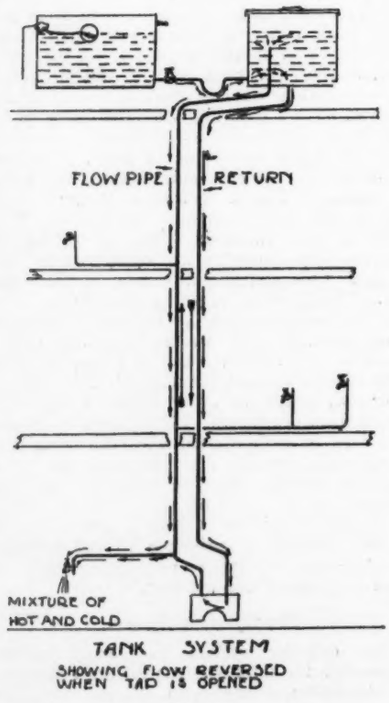


FIG. 1.

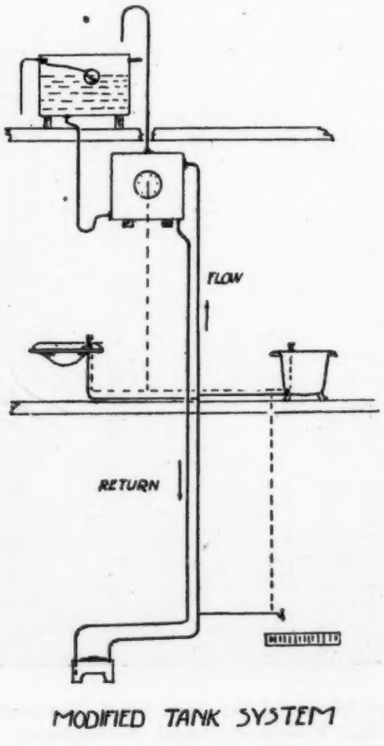


FIG. 2.

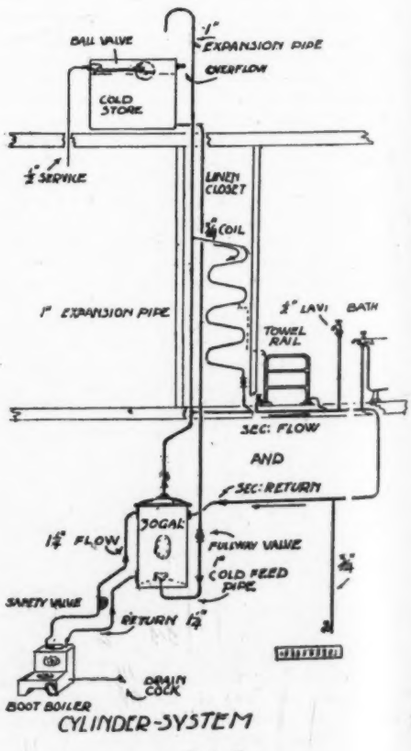


FIG. 3.

a hot-store vessel of too large a capacity in proportion to the power of the boiler, on the very mistaken assumption that a large store vessel will give a big volume of hot water. For domestic purposes a small volume of very hot water is much more satisfactory than a large volume of luke-warm water. The very hot water can always be diluted down to bathing requirements, and good hot water is essential for dish washing. The two most general types of boiler fixed at the back of a kitchen range are the "Block Boiler," with arched flue, sometimes known as the saddle boiler, and the "Boot Boiler," with arched flue. Of the two the latter naturally is more efficient as it presents a larger area to the heat of the fire; but, as before stated, the independent boiler is gradually gaining favour.

The following table is offered as a rough guide to determine hot store in relation to width of "fire back" cooking range boilers:

Width of Fire.	Block Boiler with Arched Flue.	Boot Boiler with Arched Flue.
8 in.	20 galls.	25 galls.
9 „	25 „	30 „
10 „	30 „	35 „
12 „	35 „	40–45 „
14 „	45 „	50 „

It has previously been asserted that the best position for the cylinder is near the boiler. In many small villas the cylinder is fixed in the bathroom as the most convenient position. There is not much objection to this practice, providing that the cylinder is immediately over, or adjacent to, the bathroom, thus giving a comparatively short run of the main circulation. The advantages claimed for this practice are: the cylinder keeps the bathroom warm, and the top portion of the enclosure can be used as an airing cupboard for linen. Against these advantages it should be stated that from a hygienic standpoint the bathroom is not an ideal place for storage. A good deal of steam is given off during bathing and the lower half of the encasement forms a trap for dirt which cannot easily be cleaned out. Further, it is difficult to form a secondary circulation if needed. To ensure that the hottest water only can be drawn off, the secondary return should not rejoin the cylinder at a point lower than about 6 in. from the crown. If connected lower, water from the cool parts of the apparatus would mix with the hot water when a draw-off is opened, in a similar way to that described in Fig 1 of the "tank system." To take the secondary flow from the expansion pipe and drop to the floor to again rise to the proper point of connection would be impracticable as a dip of about 3 ft. would be formed in the circulation. This would, under the given circumstances, stop any natural circulation. If the cylinder must be on the upper floor and a natural circulating "head" cannot be obtained, the only way out of the difficulty would be to connect to a lower point, generally the primary return, and fix in a check valve, that known as the "Feather-weight" non-return, to prevent the cooler water escaping when a hot tap is opened. Many existing faulty systems can be improved by fixing this valve at a suitable point. To provide heat for the bathroom, a small radiator or a towel rail should be fixed; to the linen closet a small circulation is zig-zagged on the back wall as shown.

The Combined Cylinder-Tank System.

The cylinder system has one fault on large installations which does not exist to the same extent on the tank system. Distant fittings, high up on the installation, often get a poor outflow of water. To improve this condition a tank, which is virtually an enlargement of the secondary circulation, is fixed over the affected fitting, thus giving a direct "head" of water. As this tank is a part of the hot store it is essential that the boiler should be powerful enough to do this extra work. Such a scheme is shown in diagrammatic form. The cylinder may, of course, be fixed in a vertical position if the head room permits. When fixed as shown it is essential that a "T" piece should be screwed on the end of the feed pipe inside the cylinder, to prevent the cold water, by its entering velocity, boring a way through the body of hot water contained in the cylinder, escaping with the hot water when a tap is opened. It is a distinct advantage to "lag" the hot-store vessels. to prevent loss of heat by radiation.

CARCASSING MODERN BUILDINGS WITH GAS PIPES.

By A GAS-EXPERT.

In the years which immediately preceded 1914 a steadily increasing number of architects and builders were making it their practice to carcass, as a matter of course, with gas pipes the residences, shops, offices, etc., which they were erecting. In many cases this work was carried out by, or in conjunction with, the local gas undertaking; but quite frequently the latter was not consulted in the matter, with the result that the pipe-runs were sometimes limited to certain points which the architects or builders considered necessary, but which did not cover all probable uses of gas; and sometimes pipes were run which were not large enough for the ultimate needs of the subsequent occupiers.

From 1914 to 1918 normal building operations were practically suspended, and work was principally confined to the erection of premises for purposes connected with the war, including many factories of various kinds. Comparatively few residences were built, though many of those already in existence underwent serious structural alterations. The outstanding merits of the use of gas as a fuel for various purposes became almost universally recognised in connection with the new buildings above mentioned, but perhaps more than anything else the adaptation of existing buildings brought home to architects, builders, property owners, and Government officials the remarkable developments which had taken place in the application of gas to various purposes and processes, and its adaptability to the changes in circumstances which had taken place regarding the buildings in question.

Gas proved the only practical solution of the problems which arose in these reconstructed buildings regarding cooking, heating, and hot-water supply. But when the installation of the necessary gas apparatus was under consideration it was discovered in all too many instances that either the gas pipes which already existed were hopelessly inadequate to supply the premises as altered, or that their runs were limited to one or two points only, which, for all the value they were, might as well never have been run at all. There is no doubt whatever that experiences such as these, coupled with the knowledge which was acquired by all classes of people regarding the services which gas could render to the community in general and the individual in particular, led to a considerable change in the outlook of those who were destined to deal with the general building operations on their gradual resumption after the war.

Piping Systems since the War.

In spite, however, of all past experience and the present popularity of the use of gas as a fuel, there are still occasional cases where premises of various kinds are erected without suitable and, indeed, necessary gas appliances being already installed, and sometimes—though still less frequently—without even an adequate system of gas piping being run during building operations, when such work can be done most conveniently, expeditiously, and cheaply. It is obvious that when gas pipes are thus installed the need for further disturbance of the building (with the consequent unavoidable damage to decorations) is obviated; moreover, the premises are rendered more valuable, more attractive, and indeed more habitable, to the prospective occupier. It will be noticed that the words "an adequate system of gas piping" are used, and the purpose of this article is to impress upon architects, builders, and others concerned with the erection of buildings the absolute necessity not only of piping premises for gas, but the advantage when preparing their plans of consulting the local gas undertaking as to the sizes of pipes and points which should be run, having in view the modern developments in the applications of gas and in gas apparatus.

It is not too much to state that not only is no modern building of any type or size complete without a gas service from the main being run into the premises and some form of gas-piping system being installed, but that all residences should have a complete gas-piping system run throughout, to every point where gas appliances could be needed for the immediate use of the incoming tenant, or ready for their subsequent installation in the future.

The use of gas appliances is still rapidly extending, their design and efficiency are constantly improving, and the price of gas is being rapidly reduced. All these factors go to justify the above claim, but a few further facts may be given.

There is an ever-present and persistent demand by the public for gas in one or many of its applications for use in buildings of all kinds. The purposes for which gas may be economically used are constantly increasing. Every building, therefore, should be prepared for future developments as well as for present needs.

Gas is hygienic in use, and it is the only economic and commercially sound solution of the smoke abatement and domestic service problems.

Gas is at the service of mankind, and while it may be suggested that some striking improvement and/or cheapening of one of the other existing sources of heat may occur in the future, is it not obvious that in case this does not happen preparations should be made for the use of something that is known to fulfil all the desired purposes? Moreover, it may confidently be assumed that the gas industry is not standing still, and that if improvements in appliances and reductions in price are achieved by its competitors, so assuredly will the same progress be made as regards gas.

The Cost of Installing Gas Pipes during Building.

The expense involved in installing a complete gas-piping system to cover all present and possible future needs is infinitesimal compared with its immediate and prospective future value; moreover, it is a mere fraction of the total cost of any building in which it is to be included. A comprehensive gas-piping system is very unlikely to cost more than

1 per cent. of the total money expended in the erection of any building; indeed, it usually costs less than this figure.

A gas-piping system should be looked upon as an investment, not an expense; first, from the point of view of the builder or seller of the house, because it immediately becomes more saleable and is worth a higher figure; second, from the standpoint of the occupier, who, when paying for it in an inclusive purchase price, certainly gets it at a lower figure than he would need to pay for running the necessary pipes after the building is completed, in order to supply the gas apparatus which he would wish to install.

Further advantages gained by the running of gas pipes while buildings are being erected are the prevention of subsequent discomfort and disturbance, and of the additional expense which is inevitably connected with making good damage to the structure and decorations. Moreover, even if all the points which are run are not immediately required by the prospective occupier they are ready for use at a later date, when apparatus can be connected to them with a minimum amount of disturbance at a minimum cost.

Gas Cooking.

It is perhaps permissible here to make short reference to some of the many possible uses of gas. The gas cooker is now almost universally installed or provision made for it in new buildings, and if this is not done the first tenant or purchaser is usually dissatisfied. Practically every large gas undertaking, however, has at times met with cases where houses have—very unwisely—been erected with no provision for gas, and inevitably the demand has arisen from the occupier for at least a gas cooker, with the result of additional cost of installation work and disturbance to the building and decorations. As an example, it may be mentioned that a large gas undertaking is at the present moment dealing with a number of requests from the tenants of two local authorities for the installation of gas cookers where none has been fitted under the housing scheme adopted by these authorities, and, incidentally, many applications from the tenants of another housing authority for gas for lighting, where electric light has been installed. In neither of these cases are pipes ready for the requisite purpose. Another somewhat similar case may be quoted. A large company a year or two ago erected some houses on its estate with no proper system of gas pipes installed. The superintendent who handled the sale of the houses subsequently found himself inundated with inquiries as to where were the pipes for gas water-heating, gas coppers, or gas fires, and owing to their absence he found it impossible to dispose of the houses. The gas undertaking was approached, and it was found necessary to go to the expense and trouble of pulling up boards, etc., to run the pipes which could and should have been run at a very low cost during the erection. Needless to say, arrangements were made, in connection with the extension of this estate, for the gas undertaking to run a complete system of supply pipes in the houses while they were being erected.

The above are cases of which full particulars can be provided to anyone interested in housing problems, and they are by no means unique.

Water Heating.

The use of gas for water heating as a complement to gas cooking has increased enormously in the past decade, and appliances either of the instantaneous type, such as the geyser, or in the form of gas water-heater and cylinder combined, to supply hot water to sink, bath, and basin, have been installed in thousands, even for houses constructed to be occupied by tenants of the working class. It is, therefore, obvious that if gas can be installed for water heating with advantage in working-class property—provided that the hot-water system and pipe runs in the houses have been designed for its use—its use should be anticipated and prepared for when erecting houses of a larger and more expensive type.

Gas Coppers.

The gas copper, which is now very extensively installed in residences of all kinds, has proved a boon to the housewife in abolishing the worst terrors of washing day. At a very low fuel cost it will deal with the week's wash without the labour, dust, and dirt which inevitably accompany the use of the old-fashioned solid-fuel coppers.

Refuse Destruction.

A field for the use of gas which has not yet received all the attention which it deserves is its application to the destruction of household refuse. Medical Officers of Health attached to large towns have for some years past been advocating the destruction of refuse by burning it in the household itself, instead of collecting it in vans which have to be loaded in the streets, through which it has to be carted to the destructor. However carefully it is tipped into these vans, that is obviously not a hygienic process, especially in windy weather. Moreover, these guardians of the public health have rightly drawn attention to the drawbacks connected with the use of the dustbin. In several large London boroughs leaflets have recently been sent to the householders asking them to burn their own household refuse as far as possible, and so help to secure—

(1) The better health of the community in general.

(2) The better health and comfort of their own families.

(3) The freedom from smell from the dustbin and the lack of flies arising therefrom.

(4) A reduction in the cost of refuse collection, which must subsequently reduce the amount which they pay in the form of rates.

The domestic gas-fired refuse destructor known as the "Burnall"—which is not costly and is let out on hire by some gas undertakings—has solved the problem of how to burn domestic refuse both conveniently and economically.

Gas Fires and Building Costs.

Gas fires are becoming so popular on account of their many advantages that their installation should be contemplated in all modern buildings, and pipes run to every fireplace accordingly; but in recent years a development has taken place in connection with gas heating to which reference is necessary when dealing with the question of building construction. The "economy" gas-fire flue is the development referred to, and if gas fires of the type known as "built-in with mantel register" are installed a great saving may be effected in building cost, and, what is also of great importance, more floor space made available on the same ground area. This economic principle has gone far beyond the experimental stage, and thousands of houses have been and are being erected containing such installations, with most, or all, of the usual coal-fire flues, with their large area, resultant chimney breasts, and heavy structural costs eliminated.

A further point of great importance is the fact that, the flue being constructed within the thickness of the wall, the face of the wall inside as well as out is flat, and this straight surface, without breaks or angles, saves many hours of the plasterers' time. It is perhaps not necessary to remind architects and builders that one of the difficulties connected with modern building is the lack of sufficient plasterers. In a housing scheme at Liverpool more than 1,000 houses have been built with two or three "built-in" gas fires in each, and in the London County Council's Becontree Estate some thousands of similar gas fires have been fitted. These are in houses of a small type for people of moderate means, and as it has been proved to be possible for such tenants to afford and enjoy the advantages which accompany the use of a gas fire—its cleanliness, availability, and labour- and trouble-saving qualities—it will readily be realised that the principle still more applies and has spread to residences of a larger and superior type.

The economy which may be effected in building cost by the substitution of gas-fire flues for coal-fire flues has in some cases been carried too far, and their construction has not been treated with proper respect.

It must still be remembered that they are, and must always be regarded as, flues, and that from the point where the gas fire passes its products of combustion into them, onwards throughout their entire length, they should be constructed in the same manner as coal-fire flues, and, to ensure freedom from down-draught, should discharge at the highest point of the roof, as is usual with a coal-fire flue. The economy to which reference has been made is effected by the reduction in the area of the flues, its resultant effect on the building construction, and the provision of additional floor space on the same ground area. The value of these advantages is so definite and substantial that there is neither need nor justification for taking risks.

There has been a tendency here and there to construct gas-fire "economy" flues in sizes which are inadequate to deal with the products of combustion from the fires which discharge into them, and they have also been permitted to terminate in a position where a satisfactory pull and ventilating effect cannot be ensured in all weathers. Indeed, the writer has actually met with cases where a piece of pipe has simply been stuck straight through the wall behind the gas fire or carried up to the ceiling level of the room and then taken out to the open air. Cases have also occurred where gas fires have been fitted with their flue outlets discharging into cavity walls with no proper flues constructed therein. Such work is unsatisfactory, and leads to the necessity of subsequent reconstruction work being carried out, and thus additional expense and trouble are incurred.

The Ministry of Health made the following recommendations on "built-in" gas-fire economy flues in its official organ, *Housing*, dated June 21, 1920:—"The cavity of a hollow wall should not be used as a flue for gas fires unless a suitable shaft is properly constructed therein. If smoothly finished, the size of the flue for a gas fire need not exceed 20 in. in area, but should not be less than 18 in. in area, nor less than 3 in. wide in its narrowest part. All flues for gas fires should discharge into the outer air at the top of the building, so that there may be no danger of back draught into any room. Additional flues of about 20 in. in area might with advantage be provided as ventilating flues adjoining fire flues, with inlet openings near the ceiling."

This information concerning the small gas fires which are being installed in connection with housing schemes carried out by local authorities, but below are quoted the minimum flue areas and the sizes suggested for all gas fires from the smallest to the largest:—

Gas Fires. *Radiants.*	*Fire Front.*	*Minimum Flue Area.*	*Size of Flue suggested.*
5 ..	8" ..	18 sq. ins. ..	(4½" × 4½").
7 ..	10" ..	18 ,, ..	(4½" × 4½").
10 ..	14" ..	27 ,, ..	(4½" × 9").
12 ..	17" ..	36 ,, ..	(4½" × 9").
14 ..	21" ..	40 ,, ..	(4½" × 9").

The interior depth of any such flue after completion should be at least 3 in.—but preferably 4½ in.—at its narrowest point. Each gas fire should have its own flue, and throughout the entire length it should not be connected with or run into the flue of any other fire or fires. It should be constructed in brick or concrete block; parging is not necessary, but the interior should be carefully trowelled.

The gas fire should not discharge immediately into the flue shaft, but an opening the full width of the fire outlet should be gradually (not abruptly) gathered over in the same

manner as would be done in the case of a coal fire. In effect, a products chamber should be constructed above the gas fire outlet corresponding with the smoke chamber which is always constructed above a coal fire. There will then be no check to the free passage of the products of combustion into the flue shaft proper, and the full ventilating effect will be ensured.

Exceptional cases may arise in which some departure from the standard methods set out herein may be permissible, but no deviation should be made from the general principle without consulting some competent authority on the matter.

Central Heating.

In recent years an extension of the principle of installing central-heating systems in large houses and other buildings has occasionally been advocated, but without any very material results. There are various reasons for the comparatve unpopularity of such systems in this country, among which may be quoted:—

1. Their heavy installation and maintenance costs compared with gas heating by separately contained gas-fire or gas-radiator units.

2. The love of the British people for the cheerful appearance and hygienic ventilating effect of an open radiant type of heat, such as that provided by the coal or the modern gas fire. In the dull gloomy days of autumn and winter a hot-water or steam radiator is a cheerless companion compared with the glow of a gas fire.

3. The climatic conditions in this country, which call for some ever-ready, no-work-making form of heating at practically any time of the year, as it is not unknown for a fire to be required in one or more rooms (but not throughout the house) for an hour or so, even on a June, July or August day. It is, of course, impossible to obtain such local and intermittent heat by any central-heating system. This statement is proved by the fact that at the present moment some premises which have a centrally heated system installed are having gas economy flues constructed within the walls, and "built-in" gas fires installed for the comfort of the occupants on the many occasions during which heat from the central system is not economically obtainable.

While on the subject of central heating, however, it is also worth mentioning that where such systems are installed gas can still be utilised as the source of heat. Gas is now increasingly being used for heating central systems, large gas-fired hot-water or steam boilers having been designed for the purpose. Therefore, even when central heating may be under consideration for a building which is about to be erected, gas will probably be required either for the boiler or boilers, or for some auxiliary form of intermittent heating by gas fires as outlined above.

Gas Lighting.

One occasionally meets people who seem to be of the opinion that gas need not seriously be considered when lighting problems are under discussion. While there are, of course, certain buildings in which gas lighting would be unlikely to be installed, it would be very far from true to state that it cannot play an economical and satisfactory part in a very large number of buildings of all kinds. For inside and outside shop lighting, for factory lighting, and many classes of residences, it is still being extensively installed. Modern gas fittings are now obtainable of good design, and there are many other improvements, such as super-heated cluster burners, distant lighting systems, and heat-resisting globes, which reduce the cost of maintenance. Therefore lighting points should generally be included when carcassing premises for gas heating, cooking, etc., and while the other work is being carried out they will only add a fraction to the total cost of the whole piping system.

Factory and other Premises.

It is practically impossible nowadays to find a manufacturer who does not use gas for some purpose on his premises. It may be for any one or all of the domestic uses already outlined, and in addition to these he will probably use gas for power purposes and for producing the heat required to carry out some trade process or processes.

Gas in Industry.

It is interesting to note that there are about three thousand trades which are known to use gas for manufacturing purposes, and that there is an average of seven gas-fired processes carried out in each one of these trades; moreover, this already large and comprehensive list of processes to which gas can be, and is being, applied is being steadily increased.

As an illustration of the need for running gas supplies in any factory which is in the course of erection it is, perhaps, not out of place to give a recent case which occurred on the area of supply of a large gas undertaking. A factory was being erected in a new roadway which ran through an area which had been demolished, and the building was about to be occupied by a firm of manufacturers. On the representative of the gas undertaking calling upon the builder, and subsequently the manager of the firm in question, he was advised that no gas would be required, because the firm were using steam for all their processes at the factory from which they were about to remove. The gas representative pointed out that if no arrangement were made to have a main run down the road in question, and no service pipe or carcass pipes were installed in the premises, it would probably lead to great inconvenience and extra expense to the firm at a later date, especially as the roadway was to be laid very solidly with a considerable depth of concrete. He explained also that modern applications of gas had proved that many of the purposes for which the central steam boiler was being used could more satisfactorily be carried out locally by separate gas-fired units, and that even supposing that a fairly large steam installation were also required such work could now be carried out by a modern gas-fired steam boiler of the type which has recently been installed by the proprietors of the *Times* for raising the steam required in their processes. Further consideration was given to the matter, with the result that the main and service were laid and pipes installed for a suitable gas installation. It may be mentioned that the firm in question may have been further influenced by the fact that some of their competitors had already discovered the economic possibilities attached to the use of gas.

Gas for Canteen Work.

Another point to remember when the erection of factory premises is under consideration is that in almost every factory nowadays (and in many offices) some kind of welfare work is carried on, the scope of which frequently includes the running of a luncheon-room or workers' canteen. In such cases some form of gas-cooking apparatus is always required, and, of course, the necessary pipes to supply it

The Provision of Adequate Pipe Runs.

It is probable that the statements and information contained herein may have satisfied any interested reader that it is a commercially sound proposition to install a system of gas piping in any modern building. But he may then wish to know what is the best method of procedure when considering the erection of premises, and whether there is any formula obtainable which sets out the sizes and runs of the pipes which will be required for various buildings. It is clearly impossible in an article such as this to set out any such definite simple formula, but it must be remembered that gas engineers have recently been giving great consideration to the provision of mains and services of adequate sizes, and they are naturally in a position to know the quantity of gas which these will deliver. They have also given considerable attention to the planning of comprehensive systems of gas piping for all classes of buildings, and practically every gas undertaking is prepared to give the services of representatives who are qualified to offer advice and supply information free of charge on the subject of running suitable pipes to—and throughout—any building which may be under consideration.

Whenever it has been decided to carcass premises for gas there is one definite principle which should be followed in every case, and that is that pipes should be run of a size sufficiently large to supply any possible present or future apparatus which may be required, in any room or part of the building, with a safety margin in hand in every case, in order to allow for a possible loss of pressure in any part of the system through any local stoppage that may occur after the pipes have been in use for a number of years.

For the information of those dealing with houses of a small type, the British Commercial Gas Association has prepared and published a pamphlet entitled "Standard Instructions for Preparation of Specifications for Gas Piping," free copies of which can be obtained from the Secretary.

Beyond the facts already given to show the extent to which gas is used to-day and to confirm the truth of the statement that the number of gas installations is steadily increasing, it is sufficient to say that in Great Britain in 1922 there were 4,900,000 gas cookers and grillers in use; and 67,000 new installations of gas stoves were made by one London gas company alone. Nearly 20,000,000 tons of coal are carbonised annually, producing 258 thousand million cubic feet of gas.

Finally, when it is known that over eight million houses and factories use gas, and that the demand for gas appliances steadily continues, it must be realised that in planning any new building whatsoever the consideration of gas facilities is absolutely fundamental.

VENTILATION.

DURING the last few decades some important experiments in ventilation have been followed by no less important enquiries into their practical results, and, despite the very definite statements that have been made in praise or blame, the most certain thing that can be said about the science of ventilation applied to buildings is that opinions differ.

Controversy may not be quite so public, nor appear so violent, as when the new Sessions House was first erected at the Old Bailey and crowds of students flocked to see its labyrinth of air ducts, its air washing and heating chambers, air filters and the machinery for setting up currents to the various parts of the great and complex building; but still different authorities take kindly to one or other of the rival principles of ventilation with absolute confidence in their own convictions. Natural and mechanical ventilation have each their devotees, and if, at the moment, the advocates of natural ventilation are enjoying the spectacle of their rivals suffering under the lash of certain eminent scientists, the Mechanical Party is still in active practice, and such an important building as the Council Chamber of the New County Hall has been fitted with appliances for mechanical ventilation of the most complex description. The facetious reports which appear in the daily press concerning the tortures of long suffering

Members of Parliament or of criminal judges slowly suffocated at their posts in chambers where a mechanical system has been installed, have, presumably, in some instances, some small substratum of fact, for even a judge should be capable of stating whether he can breathe in comfort or otherwise just as well as any ventilation expert can decide the point for him.

But if certain buildings are to be classed as failures when considered as examples of mechanical ventilation, and a source of mirth to those who unthinkingly exult over the mistakes and misfortunes that are bound to attend upon science experimentally applied, there still remains the question whether the blame attaches to the principle or to its faulty application to a special case. In designing the County Hall ventilation scheme, for instance, the complaints which had been raised concerning certain details of the mechanical ventilation schemes at the Houses of Parliament and the Central Criminal Court were carefully considered, yet in the new building a mechanical scheme was used after all which embodied some variations on the former installations. These, in their turn, are being made the subject of criticism and abuse in some quarters, but time has hardly been allowed for a thorough test of their efficiency. No system is perfect, and under the conditions in force some hundreds of years ago the atmosphere of our Courts of Justice is reported to have been not only nauseating but deadly, since anyone attending a trial ran a severe risk of becoming infected with gaol fever, "a contagious distemper occasioned by confinement and close air." Critics of modern methods do not seem to mince matters either, and, since gaol fever is no longer available in England, they make excellent play with what verbal ammunition they can obtain from among the ailments more fashionable at the moment, accusing extreme forms of mechanical ventilation with the production of "lassitude and headache," and with probable complications such as "pleurisy, pneumonia and peritonitis." Every detail seems to be made the subject of contention, and while some authorities commend mechanical movement of the air as beneficial, even where the vitiated air is not expelled and replaced by new arrangements by which air that has been previously warmed or cooled is projected into contact with human beings, they are now meeting with expressions of disapproval from responsible medical men on both sides of the Atlantic.

Putting aside the somewhat remote chances of catching either gaol fever or peritonitis, the habit of living in a close artificially heated atmosphere has the inevitable disadvantage that severe discomfort is involved whenever the person so habituated is deprived of the means of maintaining himself within his favourite conditions.

Adaptability to changes of climate and of weather is a quality which the white man, and particularly the Briton, possesses in a high degree, and a system of ventilation which tends to deprive him of this valuable heritage in the interests of comfort, or even in the interests of increased efficiency for short periods, is to be looked upon as pernicious in the long run.

A middle course can be found between the crudities of the so-called "hardening process" in which individuals are encouraged to face extremes of temperature without adequate protection, and the "warmth and comfort at any price school," which devitalises in the long run just as surely, if not so instantaneously, as the other.

Much more scientific attention might be directed to the homely side of ventilation so that the designer of a house would be able to provide by foresight that the rooms should be free from draughts, that the flues should draw and fires burn without wasting half their fuel in the form of soot—matters of immense importance to the householder, his family and to his neighbours, but depending at present very much more upon good luck than good management.

Continuous application to both theory and practice in another branch of sanitary science has provided us with rationally designed drain pipes and with efficient administrative control in respect to laying and testing them. The same combination of intelligence and experiment applied to ventilation will end by showing us how to admit fresh air to a room without inviting a large proportion of filthy soot, and how to warm it without discharging soot to the detriment of our neighbours. And, if the two sides of the problem are solved together, the need for elaborate air washing and filtering installations may be eliminated.

THE BIRMINGHAM GAS EXHIBITION.

SMOKE ABATEMENT.

To pass from the clean and pure air of the countryside into the murky, smoke-laden atmosphere of an industrial town is one of the most depressing experiences of the traveller, and is more noticeable when seen from the window of a railway carriage. The trees give way to factory chimneys. Cottages kept clean by the rain are followed by buildings which the smoke-belching chimneys have coated with an unlovely garment of soot and grime, which the rain, polluted from the same source, fails to wash away and only succeeds in making worse. The ever-changing beauties of the sky are almost unknown to the town dweller: a canopy of smoke hangs over all.

Collateral with the formation of these industrial areas was the erection of large areas of what soon degenerated into slums. Unhealthy dwellings appear to be part of the price we pay for our position as an industrial nation, and it is a debatable point how far the smoke which makes these towns so gloomy to live in darkens the people's outlook on life and deadens the desire for a better condition of things. It is certainly strange that the smoke evil has been tolerated so long, for it is only within recent years that any determined effort has been made to deal with it.

This smoky blight has been proved to be costing millions of pounds per annum by its decaying effect on buildings alone, while the amount of disease it causes and its toll of human life can hardly be estimated. In its worst form it has been checked by legislation prohibiting the emission of black smoke from factories, railway engines, &c., and the development of other forms of heat from industrial and domestic purposes during the past few years has been of great assistance to those who in the interests of the general public have been pressing for the abolition of the smoke nuisance. That smoke is not a necessary adjunct to industrialism is proved by the case of Pittsburg, which, formerly one of the most smoke-ridden cities in the world, now has the atmosphere of a country town. This remarkable improvement has been brought about by stringent legislation forbidding the use of soft coal, and the inhabitants have not only gained in having a better town to live in, but the manufacturers rapidly recouped the expense of adapting their works to the new conditions by increased efficiency on the part of the workers.

It is now recognised that domestic fires contribute quite as much to the smoke evil as factories; but while any attempt to convert existing coal-burning grates to consume their own smoke, or to burn smokeless fuel, would undoubtedly fail, much may be done by popularising the alternative methods of heating and cooking. The gas and electricity undertakings, and the manufacturers of fires, cookers, geysers, &c., are doing much to make the advantages of these smokeless methods better realised, and the increasing extent to which they are being adopted is the measure of their success.

The National Gas Exhibition now being held at Bingley Hall, Birmingham, and which remains open until October 3, is an excellent example of what can be done in this direction. The exhibition is under the patronage of H.M. the King, and has the support of the National Gas Council, the Institution of Gas Engineers, the British Commercial Gas Association, the Society of British Gas Industries, the Gas Companies' Protection Association, the Midland Association of Gas Engineers and Managers, the various District Gas Associations, and the leading Corporation Gas Committees and Boards of Gas Companies. It is under the control of an Executive Committee representing the Midland Commercial Gas Association, and has for its President the Rt. Hon. the Lord Mayor of Birmingham (Alderman Sir David Davis, J.P.).

At this Exhibition are demonstrated the convenience and cleanliness and other advantages of the "all-gas" house. And although these advantages were formerly mostly appreciated by those who found difficulty in obtaining domestic assistance, the increasing adoption of gas fires, coppers and geysers in the housing schemes of local authorities, is bringing these labour-saving devices before the notice of those who probably most need them—the working classes. At the exhibition the apparatus shown ranges from elaborate schemes of a large central geyser supplying hot water to all parts of the house for heating by radiators as well as for other purposes, to simple and inexpensive fires, cookers, and hot-water apparatus specially designed for cottage property.

Some of the gangways are brilliantly illuminated by lamps supplied by Messrs. James Keith & Blackman Co., Ltd., of 27, Farringdon-avenue, E.C. These are of 1,500 c.p. and 1,000 c.p. each, and are served with gas at the increased pressure of 3 lb. per sq. in.; by this means they are giving an efficiency of 60 c.p. per cubic ft. of gas.

The Stands.

The City of Birmingham Gas Department has two stands, one of which exhibits samples of gasworks' by-products, including small coke burned in an anthracite stove without any possibility of explosion, while the other is devoted to a working model of a new gas furnace.

This new type of high-efficiency gas furnace has an inside working chamber of 4 ft. 6 in. long by 2 ft. 6 in. wide by 18 in. high, working with town's gas at the ordinary Birmingham main pressure with a natural draught. It has been developed by Messrs. Gibbons Brothers, Ltd., in conjunction with the Industrial Research Laboratories, with the object of producing a heating plant of a high thermal efficiency, especially in the larger sizes having hearth areas of from 3 ft. by 2 ft. up to 12 ft. by 5 ft. The construction follows closely the lines of existing large type producer gas-fired furnaces, and includes a special type of counter-current regenerator applying to both gas and air supplies. The gas is admitted in bulk through specially-designed ports, and meets its total supply of heated air in a combustion chamber under the furnace hearth. The burning gases pass into the furnace chamber, and then through suitably arranged outlet ports to the waste gas flues of the regenerator. These waste gas flues are independently controlled by dampers which provide a simple and effective means of regulating the end-to-end temperature of the furnace. Temperature control is ensured by wheel valves to each gas port, and atmosphere control by separate air slides at the top of the regenerator, communicating direct with each gas port. By these means it is a simple matter to obtain either an oxidising or reducing atmosphere in the furnace chamber. Recent tests carried out on a furnace 4 ft. 8 in. by 2 ft. 6 in. by 18 in. show a thermal efficiency of 35 per cent. under normal working conditions when dealing with charges of 10 cwts. in weight.

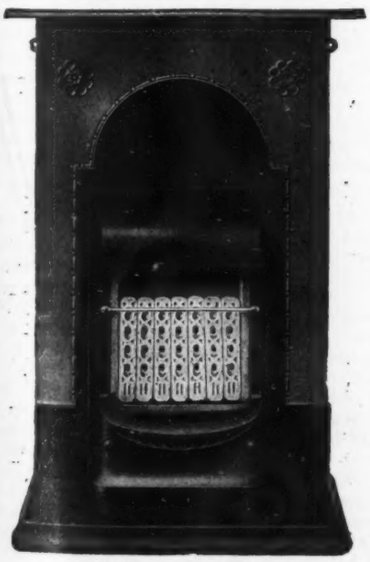
The British Commercial Gas Association is

demonstrating a series of effective designs for gas showrooms.

The products of Messrs. Sidney Flavel & Co., Ltd., of Leamington, are now well known, and those shown here embody some new improvements. In their new cooker a novel form of burner is introduced with the object of solving the problem of the use of highly efficient and, therefore, high temperature flame in the cooking of thick or viscid foodstuff. In the new arrangement by the touch of a lever the burner may be depressed so that flame contact is prevented when viscid food is involved, yet a sufficient heat can be maintained to meet all requirements. At the recent Royal Sanitary Institute Congress, at Hull, a silver medal was awarded for this cooker. Attention is also called to a cooker with two ovens, the usual hot-plate, and a hot closet with sliding glass door, all the metal work except that on the hot-plate being of rustless steel.

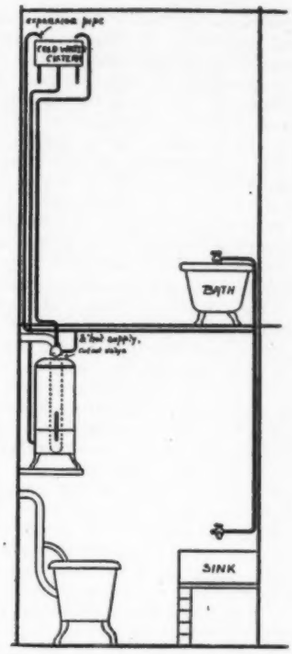
The chief exhibit of Messrs. Ewart & Son, Ltd., of Euston-road, N.W. 1, is their "B" pattern "Califont," which furnishes an independent supply of hot water wherever required. This may be fitted in any part of the house, and provides hot water to any number of taps. The temperature of the hot water may be regulated at will. The hot water continues to run as long as the tap is left open and the closing of the hot water draw-off tap instantly lowers the gas to a pilot light. There is considerable saving of gas as the gas only burns fully alight while the water is actually running into the vessel in which it is required. For bath purposes only this firm is showing the "Lightning" geyser, which is fixed over one of their cast-iron porcelain enamelled baths, and the "Elite," which is arranged with a shower. Bath heaters of the geyser type are also shown. For cafés and hotels, where there is a demand for a boiler which will give rapid supplies of boiling water, freshly boiled, for tea and coffee making, the "Ever Ready" boiler is exhibited. The merit of this boiler is that the water is boiled as required, *i.e.*, cold water enters the apparatus and boiling water leaves it. Other exhibits on this stand include a geyser for use with lavatory basins and sinks, a gas copper in which the pan is made from one sheet of metal without a seam or joint, a gas-heated linen-cupboard heater, and a gas-heated towel rail.

Some apparatus of special interest to those concerned with housing schemes or small property is exhibited by the Parkinson Stove Co., Ltd., of Stechford, Birmingham, whose products have been installed in some thousands of State-aided housing schemes. The "built-in" gas fire (illustrated herewith) has been extensively



Built in Gas Fire.

used on the London County Council's housing estate at Becontree. It is specially designed for use in new houses, where the cost of erection may be reduced and space gained by the elimination of chimney breasts. The height is 38 in., and the width 23¾ in.; the shelf is 28½ in. wide by 5½ in. deep. The base measures 11 in. from back to front. The fire and hearth are finished art black, and the surround and shelf primed only. The fire takes five or seven radiants. The "Liverpool" series of gas cookers, such as are being supplied for the Liverpool Corporation's new houses, are also exhibited. These are supplied in two designs. The larger size measures 34 in. high on stand, and has an oven door opening 14 in. wide by 16 in. high and a hot plate 20½ in. wide by 17 in. deep. The smaller size has a height (on stand) of 34 in., the cooker itself having a hot plate 20 in. wide by 17 in. deep and a door opening 14 in. wide by 10 in. high. Another interesting exhibit on this stand is the sealed pattern "New Cottage" water heater (illustrated above), which has also been largely adopted on the Becontree estate. This heater is made in non-rusting copper, and no galvanised iron fittings are used. It supplies hot water either above or below its own level. A separate expansion pipe from the cylinder prevents the accumulation of steam when the cut-out valve is closed, or the expansion pipe may have the connection to the hot-water taps taken off at one or more branches. The illustration shows a heater for supplying bath and sink, and, as will be seen, by the manipulation of a chain-operated valve either the bath or sink may be supplied.



"New Cottage" Water Heater.

The "Hurry" Water Heater Co., of 39, Broad-street, Birmingham, are showing their well-known cylinders, furnaces, and bath heaters. These are supplied in sizes to meet all requirements. This firm's 10-gallon cylinder has been adopted for the Nottingham Corporation's housing schemes, and many others.

Messrs. James Stott & Co., of Vernon Works, Oldham, are making a special feature of their coffee-making machine, which has several novel features. The coffee grains are first scalded and their pores opened, then the extraction or expressing of the essence takes place. The machine is fool-proof and economical, convenient to use, and automatic in operation. After lighting the pilot burner, putting in the coffee grains and filling the boiler with water, the machine does the rest, no further attention being required except when a fresh infusion is desired. There is no gas to shut off, no steam tap to turn when boiling, and no filling tap to operate. The action of filling with water automatically turns on the gas before infusion, and the process of displacing the water automatically turns the gas off after infusion. An automatic operation is also set up which is the means of dispensing with the necessity for a water filling tap. Immediately the water boils infusion commences automatically. The apparatus forms a complete and self-contained appliance for both making coffee and holding it economically in bulk ready for use, and should be of considerable interest to hotel and restaurant proprietors. Water heaters and urns specially designed for use in cafés are also shown by this firm.

Messrs. Evered & Co., Ltd., of Surrey Works, Smethwick, are exhibiting a large range of lighting fittings and other specialities, including the "Everite" lighting service burners and fittings, which are equally applicable to street lighting, the lighting of public buildings, and domestic use.

Messrs. R. & A. Main, Ltd., of Falkirk, are showing a new type of gas fire which has a close resemblance to a coal fire. This fire is designed to fit into any fireplace by simply removing the front bars of the existing grate. The resemblance to a coal fire is obtained by a separate "mat" of black cokette strung together with wire, and laid over the radiants. A representative selection of fires, cookers, grillers, hot-plates, &c., is also to be seen on this stand.

It is estimated that by the use of automatic devices of lighting and extinguishing street lamps, such as those shown by the Horstmann Gear Co., Ltd., of Newbridge, Bath, a saving of over 70 per cent. may be saved on this head. The simplest type of this firm's "Newbridge" controller requires winding fortnightly, and it is so made that the winding, time-setting, and the adjustment of the times of lighting and extinguishing are independent of one another, and can be operated and adjusted without disturbing the other elements.

A selection of attractive fires is shown by Messrs. General Gas Appliances, Ltd., of Guide Bridge, Manchester; these are made in a variety of finishes. A new type of treble-tube loop radiator embodying some new features, and a range of gas cookers, are also shown by this firm.

A representative range of the "Radiation" pattern standard gas grates as manufactured by the six firms comprising Radiations, Ltd., *i.e.*—Arden Hill & Co., the Davis Gas Stove Co., Ltd., Fletcher, Russell & Co. Ltd., Wilsons & Mathiesons, Ltd., and John Wright & Co.—is shown. All of these fires have the "Radiation" standard patent injector-ventilator, which changes the air of the room up to six times an hour. The "Radiation" patent "Thermo-XX" radiants used in all these gas grates are a distinct advance on the old pattern, inasmuch as the loose top piece is dispensed with, and the design assures more efficient combustion, with consequently greater heating power. All working parts of these grates are interchangeable, size for size, among all the "Radiation" firms, which makes for economy in maintenance. The fires are shown in many attractive designs, specially noticeable

being the "Sunbeam," which has a remarkable resemblance to a coal fire. This firm has a separate stand for the demonstration of cookers. Particular attention is drawn to the "Regulo" automatic oven heat controller, which has been introduced for the first time in the "New World" self-controlled cooker. By its use the temperature of the oven can be set at a certain figure, and it will be automatically maintained under all conditions throughout the cooking of the food. A "time-chart" is provided, which sets out the requisite times and settings for all classes of cookery. The latest model of this cooker, in which the oven is placed on one side and the hotplate on the other, with a rack underneath for pans, &c., is also shown.

The Midland Gas & Water Fittings Co., of 181, Aston-road, Birmingham, are making a special feature of "Hosler's" Midland heater, which is designed to provide and maintain a constant supply of hot water at a low cost.

A new material for piping is shown by the Non-Corrosible Pipe Co. (the British Uralite and Cellactite Works), of Higham, near Gravesend. This firm is making all kinds and sizes of gas piping, bends, flues, down-draught preventers, and other accessories and fittings, in asbestos-cement. Besides cheapness in first cost, the chief advantage claimed for this material is that it does not require painting, and this results in lower maintenance cost. The material is claimed to be gas-tight but at the same time absorbent, thus preventing condensation.

In addition to their patent burners, the Etna Lighting & Heating Co., Ltd., of 295, Broad-street, Birmingham, are showing their economical factory lamp, which automatically superheats the gas and has a consumption of only 3 ft. of gas (low pressure) per hour for a 150 candle-power lamp.

A screw with a square-headed recess in the head, in place of the usual groove, is shown by the Rawlplug Co., Ltd., of Gloucester House, Cromwell-road, London, S.W. 7. A special screwdriver is supplied for fixing these screws, which may thus be driven with one hand only; they should be specially useful for fixing to ceilings or other overhead work. The well-known "Rawlplug" outfits, for fixing to brick, tile, or other hard substances, are demonstrated, and the stand also contains some aluminium towel-rails and bathroom fittings.

The above notes on some of the more representative stands give a general outline of the nature of the exhibits. The show is of considerable interest, and should be seen by all interested in the smoke abatement movement or in the planning of convenient and labour-saving homes.

BOOK REVIEW.

The Construction of a House. By CHARLES GOURLAY, B.Sc. (Glasgow University), F.R.I.B.A., Professor of Architecture and Building in the Royal Technical College, Glasgow. Second edition, revised. (London: B. T. Batsford, Ltd. 1922. Price 7s. 6d.)

Professor Gourlay's book should be of great value to students of building construction in that the forty plates which illustrate the methods of house building and joinery all refer to the same scheme, and each detail can be studied in relation to the whole. A large mansion standing on an open site near a stream has been chosen as the subject and stone as its material, the character of the work being such as would be seen in the country surrounding a large Scottish city. Economy has not been made a first consideration in the design, but the usual complement of features, both external and internal, are shown in order that their construction may be elucidated in the sheets allotted to detailing them.

Modern building construction is most complex, and a set of plates designed in illustration of its normal practices inevitably departs somewhat from ideal simplicity. Professor Gourlay must be congratulated on having found accommodation for a great many typical details without doing violence to his theme or departing from the style suitable for execution in small stone masonry. As he writes in his Preface: "Although the several parts of the house itself have been adopted largely in order to bring together a number of constructive features, yet the external grouping of the whole house has been kept in view with the object of maintaining the unity of the design."

Students are warned that copying alone will not make them masters of their subject. The plates should be used as a basis for the student's own design, which will be the more instructive to him if it differs from the pattern, provided that he works it out consistently in plan section, elevation and details. Apart from the unavoidable diversity in the matter of features, the house is distinctly of a practicable order, and is compactly arranged with passages of only moderate length. Those on the ground floor are arranged to afford pleasant effects of light and shade by windows in their sides, not at their ends, and all are capable of good natural ventilation. Each plate is briefly described in the letterpress, and the student is forewarned of many difficulties that occur in practice. More might have been said in the text concerning the question of aspect, which has, in fact, been admirably worked out in the design. Bedrooms receive the morning sun, larders are screened from the heat, and hall and vestibule are placed where they act as buffers to the north wind. These essential elements of architecture too seldom receive adequate attention, and it is a pleasure to recognise them in an excellent and moderately priced text-book.

RUBBER FLOORS AND RUBBER ROADWAYS.

THE first meeting of the session of the Institution of the Rubber Industry was held on September 17 at the Engineers' Club, Coventry-street, Piccadilly, when a paper was read by Mr. Evan J. Edwards entitled "Rubber Floors and Rubber Roadways." The chair was taken by Mr. Francis Hooper, F.R.I.B.A., Vice-Chairman of the Standing Science Committee of the Royal Institute of British Architects.

The Chairman stated that architects' daily problems are both economic and social, their aim being to employ the most suitable materials in the varied undertakings entrusted to them. This trust precludes the employment of untested materials for obvious reasons. Their duties concern the wise outlay of the capital of others, and they can embark therefore upon no experiments without their full concurrence. The Standing Science Committee of the Royal Institute of British Architects have for some months past been considering the subject of architectural acoustics, which may be considerably affected by the employment of rubber for flooring and wall surfaces.

Mr. Edwards dealt with the second part of his subject first. The question of rubber roadways at the present time is attracting a great deal of interest. We, as a nation, are frequently told that we are behind the times, and we let other countries get in front of us, but rubber roadways are a good example of British enterprise, it being admitted that we are the only nation which has seriously considered this problem. The first rubber roadway ever to be constructed was invented by Mr. Morland M. Dessau, and this was in 1913 in Southwark, at the junction of the New and Old Kent-roads. The construction employed in this case was the mounting of a Yarrah wood block, 3 in. wide by 8 in. in length, with a pure plantation rubber facing $\frac{1}{2}$ in. thick. Probably we have all been very much interested during the last week or two in seeing rubber blocks laid round the Cenotaph in Whitehall. In this case a smooth concrete surface has been prepared, and on this hot pitch has been spread just prior to laying the rubber. The rubber blocks are constructed with a groove one side and a corresponding projection on the other, so that when laid they are really mortised and tenoned into position. Before being laid each block is dipped in hot pitch. Rubber roadways constructed by a different method have been laid in Glasgow and Edinburgh during the present year. In these cases a rubber block, measuring 9 in. by $4\frac{1}{2}$ in. by 2 in. thick, is fixed by means of an embedded steel spike into a concrete base block of slightly smaller dimensions.

Mr. Edwards' personal opinion is that the greatest point in favour of rubber roadways will be proved to be economy, *i.e.*, *ultimate* economy. It is the only road material which will absorb and distribute the weight of the traffic carried. Other materials by their non-resilience immediately transmit the loads to the foundations of the roads. Before leaving this subject, mention must be made of the fact that large slabs of rubber were laid a good many years ago at the entrances to both St. Pancras and Euston Stations and elsewhere, though as these were under cover the results obtained are not of very great use when considering ordinary road work. The rubber pavement in Princes-street, Edinburgh, was down for over twenty years, and each year it must have been walked upon by many millions of people, yet it was found to have lost only a fraction of an inch in thick ness during that period.

Turning now to floors, rubber as a flooring for interiors has been known and used for many years, and has abundantly justified the claim that it is absolutely the best and most economical flooring in existence. During recent years a great development has taken place, and in public buildings as well as in many private houses rubber has supplanted marble, mosaic, parquet, carpet, linoleum and other floor coverings. The different types of rubber floorings may be roughly classified into four. Interlocking tiling, as its name implies, consists of separate tiles which interlock, each one being kept in position by the others. The second form is solid tiles, not interlocking, but owing to difficulties connected with laying it is not found to be quite so satisfactory. A third type—which is far and away the most popular and which Mr. Edwards considers to be the best—is what is known as inlaid tiling. The tiling consists of two separate qualities of rubber which are put together before vulcanisation, and which after they have been in the hydraulic press cannot be separated from each other. The bottom layer is made of a grey, resilient quality, while the top half is harder, so as to withstand wear. Other advantages are that it is noiseless, non-slipping and beautifully soft to walk upon, it cannot possibly harbou dust or dirt, all helping to render it the perfect flooring.

Last comes rubber carpeting. This was originated by a British manufacturer, but has since been copied in various parts of the world, including Germany. Rubber tiling is vulcanised in a press, whereas rubber carpeting is made on a calender machine, making it possible to turn out rubber carpeting by the mile; in consequence there is a great difference in the cost, rubber carpeting being, roughly, a third of the price of rubber tiling. A still more recent development of this rubber carpeting idea has been the introduction of the thickness of $\frac{1}{16}$ in. instead of $\frac{1}{8}$ in. This has opened up a still greater field, for already it is being extensively used for covering office and restaurant tables, counters, shop windows, and also for certain other purposes, such as walls of bathrooms.

The paper was illustrated with lantern slides of the laying of rubber roads in Edinburgh and Glasgow, and various floorings, together with wall covering.

THE BUILDING TRADE.

THE RATING AND VALUATION PROPOSALS.

THE Government have drafted a Bill the object of which is stated in the preamble to be "to simplify and amend the law with respect to the making and collection of rates and otherwise, to promote uniformity in the valuation of property for the purpose of rates and taxes, and for other purposes incidental to, or connected with, the matters aforesaid." In a Memorandum issued with the Bill it is stated that the proposals contained in this draft Bill are submitted to the Associations of Local Authorities, and other interests concerned, for their consideration and comments, therefore, during the period allowed for consideration, which we understand is three months, it is of extreme importance that this Bill should be understood and any criticisms or suggestions should be made, for this seems an almost unique opportunity offered by the Government for the careful consideration of a vital measure before it is introduced into Parliament, where as experience has shown, time does not permit of such thorough investigation of important measures as is often desirable.

In the Memorandum (paragraph 2) the main objects of the proposals are stated to be the simplification and improvement of the administrative machinery of rating and valuation and the removal of various anomalies inherent in the present system, the substitution of a single valuation in the place of the separate valuations at present required for purposes of rating and taxation, and the promotion of uniformity of valuation as a condition precedent to any comprehensive review of the system of Local Taxation and Exchequer Grants. The advantages which it is claimed the Bill will bring are stated in paragraph 3 of the Memorandum: "Economies will be effected by avoiding the duplication of work and the unnecessary expense occasioned by the separate valuations for purposes of rates and taxes, the maintenance of a separate rating authority for each of the 14,427 parishes, the levy of separate rates in urban areas (usually by separate staffs), the obsolete multiplication of funds and accounts and the valuation of each parochial section of railway and other undertakings as a separate entity."

This is an attractive programme, but careful consideration will be necessary to ascertain how far the proposals will affect the ratepayers and whether the economies will benefit them, or whether the Bill represents merely a fire for them in place of the frying-pan. The Memorandum states that some of the proposed reforms of the valuation system are based on the findings of various Commissions and Committees of inquiry, others upon the experience of the working of the Valuation (Metropolis) Act, and that the rating reforms are mainly novel, although some of the larger local authorities have obtained private legislation in recent years to consolidate their rates. In this preliminary notice we can do nothing but indicate some of the alterations in the law proposed by this Bill as explained in the Memorandum:—

(i) Parochial rating is to be abolished and boroughs and urban and rural districts are to be substituted as rating areas.

(ii) A General Rate is to be substituted for the present poor rate, district rate, highway rate, etc., in boroughs and urban districts, and in rural districts a general rate taking the place and having the same incidence as the poor rate, and a special rate, levied by the rural district council on each parish or part of a parish which is separately chargeable with special expenses under the Public Health Acts or lighting expenses under the Lighting and Watching Act, 1833.

In connection with this rate consolidation it is proposed to give effect to reliefs not in the assessment or collection of rates but in deducing "operative rateable values from gross values in the valuation lists," thus making it possible to levy the general rate at one and the same poundage in each area.

This is shown in section 16 and Schedule II. The gross value will be as heretofore the gross estimates rental, viz., the annual rent which a tenant might reasonably be expected to pay taking one year with another, the landlord bearing the cost of maintenance and the tenant paying the tenant's rates and taxes, so the case law will apply to this. But the "operative rateable value" is obtained by deducting percentages on scales as shown in the Schedule in place of maintenance allowances which, however, involves what appears to be a very complicated calculation. In this part of the Bill dealing with "rating" there are innumerable provisions which will require the most careful consideration. This deducing operative rateable values from gross value is one of them. At the present moment we can only say there are some useful provisions, and we may instance the provision which would make the contribution of an outgoing and incoming ratepayer to the General Rate correspond with the portion of the half-year he has been in occupation.

It is the second part of the Bill which may prove the most contentious, which provides that there shall be only one valuation, in the place of the separate valuations now required, for rating and taxation, that the values so determined should be the basis for the assessment of county as well as local rates, and that the gross values appearing in the valuation lists should be adopted as the gross values for the purposes of Income Tax Schedule A and Inhabited House Duty. This, as is stated in the Memorandum, is a system which has been applied in the Metropolis, but special considerations apply to the Metropolis, and its application to the whole country may be a different matter, for it will involve an interference with local self-government and a reversion to centralised authority. That this must be the case is shown by the paragraph in the Memorandum, which states: "The collaboration of the revenue officers with the local rating authorities will help to promote such uniformity, and inasmuch as the gross values are to be used for purposes of Imperial taxation it is, of course, necessary that the officers representing the Crown should be concerned in the preparation and revision of the valuation lists."

To carry this out we see it is proposed that two of the persons appointed by the County Council, or County Borough Council, as the case may be, to Assessment Committees, shall be General Commissioners of Income Tax. In the Bill "the Revenue Officer" plays an important part, and in section 60 this official is stated to be "Any Officer of the Commissioners of Inland Revenue authorised by the Commissioners to exercise any powers or perform any duties conferred or imposed on a revenue officer by this Act." The way this officer will function can be seen by one example. Thus where the rating authority has prepared a new valuation list it has to be delivered to the Revenue officer. If it appears to this official that the amount appearing in the preliminary statement as to the gross or rateable value of any hereditament is incorrect, or that the statement is in any other respect incorrect, he shall insert what is in his opinion the correct amount and shall make any other alteration therein as to him appears necessary. The rating authority shall consider these alterations, and if a difference of opinion arises, then the matter is referred to the Assessment Committee, upon which it must be remembered two revenue officials will sit, and before which the revenue officer will be present and be entitled to be heard and to examine any objector and to call witnesses. This officer has also the right of appeal against any decision of an Assessment Committee.

In a first notice of a measure of such complexity as this Bill it is impossible as well as undesirable to express any opinion whether for or against it. The Bill consists of 62 sections and five schedules, and the accompanying Memorandum is a document of 15 pages. We have only mentioned a few of the main provisions of the Bill, and our intention has only been to show that it will require the most detailed and careful examination. Some of its provisions, for instance those relating to the rating of railways and other undertakings as a whole, may prove advantageous and, as inquiry is invited with the view of obtaining suggestions from the local authorities and others interested, the good may well be winnowed from the bad in this measure, but we must draw attention to one clause which certainly should not be permitted to stand in any Act. We refer to clause 59, which applies only for a limited period, but which gives the Minister of Health power where any difficulties arise in connection with the first valuation list "or otherwise in bringing into operation any of the provisions of this Act" to make any appointment "or do anything" as appears to him necessary or expedient for bringing the said provisions into operation, and "any such order may modify the provisins of this Act so far as may appear to the Minister necessary or expedient for carrying the order into effect." We have hardly come to allowing a dictatorship in legislation even for a limited period, and only for the purpose of making an Act of Parliament workable we may mention that the rating of machinery is not included in the Bill as the Memorandum states the Minister proposes to appoint a Departmental Committee, and the question must be reserved until it has reported.

It is noticeable that the Bill, with two exceptions, is not to apply to London. Those two exceptions will not materially affect the present system in London as they are only the provisions contained in Part I as to precepts and the provisions contained in Part II as to the valuation of special properties (that is, tramways, docks, canals, telegraph or telephone works, gas works, water works, and electric light or electric power works), therefore the point which will be of the greatest interest to ascertain is how far the provisions of the present Bill differ from the present system in London, and how the system existing in London has been found to work in practice, for it appears that the evidence produced in these two heads will have a considerable influence on the reception accorded to the Bill.

Builders' Supplies for New Orleans.

The Department of Overseas Trade has received an inquiry from a firm in New Orleans who are desirous of receiving quotations and samples of slates, riding tiles, firebricks and builders' supplies from United Kingdom manufacturers with a view to purchasing on their own account or to acting as agents. Applications for further particulars should be addressed to the Department of Overseas Trade, 35, Old Queen-street, Westminster, S.W.1. (Reference 20143–F.W–M.C–(2).)

DAMAGE TO PROPERTY FROM HEAVY MOTOR TRAFFIC.

IN connection with the article which appeared in our issue for July 27 on "Heavy Traffic and Vibration," a correspondent writes urging combined action on the part of property-owners, and states that the National Citizens' Union would be prepared, if adequately supported, to take a test case where damage has resulted from vibration caused by the very heaviest class of motor vehicles.

Our correspondent also states that the law is deficient in the powers given to schedule side roads as unsuitable for heavy traffic, as under the Roads Act, 1920, a road can only thus be placed out of bounds when actual damage has taken place. We have not the Act before us to see what are its terms, but this scheduling of roads is a matter which should be dealt with on the application of the local authorities without delay, for if a local authority advises that a road should be scheduled it may be taken for granted there is good reason for it, as these bodies do not take at all a prejudiced view on motor traffic.

In an article in the September issue of the *New Voice*, the organ of the National Citizens' Union, to which our correspondent has drawn our attention, it is stated that on the Committee now being set up by the Ministry of Transport the ratepayers are not adequately represented, and there are other points in this article worthy of consideration. Thus it indicates that although through the action of the Ministry a more just distribution of the cost of road upkeep may result it is not a full remedy for the road trouble so far as the property owner is concerned, for his house is being shaken to pieces; and it points out that this question of vibration will also arise even if Lord Montagu's scheme for great motor-ways is adopted, for then the vibratory area and the compensation to property within the vibratory limit will still have to be considered.

The present problem of heavy motor traffic on roads forms a great contrast to the inauguration of heavy traffic on the railways. Our forefathers were impressed with the danger of the new kind of traffic introduced by the railways, and before that traffic was allowed to develop every possible precaution was taken. The railway companies had to acquire the land, all the amenities of adjoining property owners were safeguarded, and compensation had to be paid, not only for the land but for any injury sustained by vibration or otherwise. Motor traffic has, on the contrary, developed and extended on the roads until it closely resembles the heavy traffic conveyed by rail, but the legislation, instead of preceding it, has lagged behind and the property owner is uncertain as to his rights and is left without adequate statutory protection. The railway company remains burdened with rates and fenced in by statutory regulations, but the rival traffic on the highways, especially heavy through traffic, escapes the same burdens as to rating in the various districts it passes through and is immune from the question of compensation to the owners of property. The railway companies maintain their own rail roads, but the heavy motor traffic uses the public highways and its contribution to the upkeep of those highways is not proportioned to the wear and tear it entails.

In the article in question this question of the contribution to the highways is dealt with, and some figures are given showing the contribution to the Road Fund made by the various classes of mechanically-propelled vehicles. The question of the mere upkeep of the roads is not, however, the only point to be considered, and both our correspondent and the writer of the article lay very necessary stress on this point, for the damage to house property is also extremely serious and yet does not receive the attention it should do from those in authority.

We are in accord with the observations of these writers, that the vehicles themselves must be "tackled," that they must be built of less tonnage and with vibration absorbers, good springs, pneumatic tyres, and on principles that will ensure the least possible damage. Strict legislation on such points would assist the property owner in obtaining compensation for damage done to his property, for, although the user of the highway it itself may give no cause of action, damage caused by a breach of a statutory regulation would give a cause of action by itself if the damage could be proved to result from that breach. The property owner has good cause for anxiety, however, when he sees that even serious loss of life from motor traffic is almost accepted as an inevitable concomitant of motor traffic, and in this connection we may refer to the return recently made by the Metropolitan Police as to motor accidents in the London area during April, May, and June this year. A total of 12,962 accidents is reported, with fatal results in 153 cases. Out of this number of accidents, however, the private motor-cars contributed 4,445 accidents with 51 deaths, but "trade and commercial" mechanically-propelled vehicles come next with 3,391 accidents and 60 deaths.

THE BRITISH ASSOCIATION AND BUILDING.

AT least 280 different subjects were dealt with at the ninety-first annual meeting of the British Association held at Liverpool.

Professor Henry Clay, in dealing with "Post War Wages Problems," showed that the settlement of wages before the war was facilitated by the existence of well-understood and stable relations between wages in different occupations, kept in close correspondence with commercial exigencies by continual small modifications. The effect of the war was to dislocate those relations, interrupt this modification, and bring wages into correspondence with wartime economic needs instead of normal commercial needs. The post-war problem was to restore the stability in the relations of wages and the close correspondence with commercial possibilities that existed before the war. This involved changes from pre-war relations, and the recognition as lasting of changes that were still regarded as temporary, in order to allow for certain important changes since 1914 in the factors underlying wages. The chief of these were changes in the distribution of workers among different occupations; changes in the organisation of wage-earners; in the character of the work required; and in the markets of British industries. It was difficult to ascertain whether the general level of real wages had risen or fallen, and impossible to forecast its level in the future; so far, however, as a general level had to be assumed for the purpose of settling particular rates, it would prove necessary to take the average level of wages in export industries as the norm, rather than continue the present custom of taking the pre-war level of money wages and raising it to compensate for the increased cost of living.

Mr. Clarke dealt with the problems of re-housing the slum dwellers, in three main divisions: (1) Pre-war re-housing; (2) immediate post-war re-housing; and (3) the future. Under the first head, he reviewed the function of the private builder before the war. The work had been done by private enterprise, and he had come to believe that private enterprise could do whatever was required. The problem of re-housing on the same areas had been done in one case to the extent of 99 per cent., and in another of 95 per cent. After the war, owing to the cessation of building during the war, local authorities decided on a conservative estimate that they required a little more than one million houses. About 18 per cent. of the requirements in 1918 had been met. In an area near the Liverpool University 597 persons were living in 56 houses, with a total of 163 bed-rooms. Of those persons 349 were over 16 years of age. At Birkenhead, a house let before the war at 6s. 2d. per week was yielding its tenant 32s. 6d. by being sub-let. Another that was rented at 5s. 5d. before the war was sub-let to yield 42s. 6d. per week.

The house shortage still being very acute and a million men unemployed and receiving out-of-work pay from the Government, Mr. Clarke urged that the Government should take prompt action. All men between 18 and 25 years of age, who had done no work for, say, twelve months, and could give no evidence of any prospect of work, should, he said, be recruited into the Royal Engineers to constitute Housing Battalions on the lines of the Dockers' Battalions created during the war. Each man should be given a course of training, at the expiration of which he should be drafted into a battalion ready for service. The Government should adopt the housing survey of 1919 as the standard and require this programme to be carried out. The local shortage of man-power would be met by reinforcements from the Housing Battalions as occasion demanded. To prevent any question arising with trade unionists, the members of the Housing Battalions would be paid at the trade union rates. At the same time the Government should introduce a system of costings for the building trade as a whole. This was done very effectively during the war in other trades, and would have the effect of benefiting private industry as well as the natural and local authority activities. Where necessary, also, materials should be commandeered.

The paper by Mr. W. Barnes, M.I.M.E., dealt with "The Development of the Single-bucket Excavator." Single-bucket excavators in connection with the excavation for the foundations of buildings were in common use, especially in America, where they were sometimes used to remove only a few hundred cub. yds. of material. At one end of the scale they had the small dragline excavator, weighing about 20 tons, fitted with a ¾ cub. yd. bucket. At the opposite end was the huge 300 ton dragline excavator, which had just been delivered to cut the large canals, some of them 200 to 300 ft. wide, in connection with the irrigation schemes in India. About 20 dragline excavators were at use upon the irrigation scheme in the Sudan, and it was an excellent proof of the usefulness and the efficiency of those machines to know that they could satisfactorily compete with the cheap coolie labour in India and the Sudan.

Book of Normals (Section IV).

A book which should prove of interest to a large number of people has been prepared by the Meteorological Office, Air Ministry, and published by H.M. Stationery Office. It is entitled "The Book of Normals of Meteorological Elements for the British Isles." Section IV, just issued, price 3s. 6d., gives for 30 selected places in the British Isles, for each month of the year, the average temperature and the highest and lowest temperatures which may be expected, also the average amount of rainfall and number of raindays. Such questions as: "What is the highest temperature reached at —— on the normal August day?" "What is the lowest temperature on the normal January night?" "In what month is there normally the largest rainfall?" can be answered at a glance. In addition there are tables giving for various places the number of days of thunder, hail, snow, frost and fog which occur on the average in each month.

Lord Leverhulme's Scheme.

Viscount Leverhulme, describing to a Press representative his scheme for giving freehold building sites to all who wanted them on the Spital estate, near Port Sunlight, said it was an experiment. When the house shortage was apparent he advocated the municipality buying the surrounding fringe of land and stimulating building by giving free sites. Smallholders had to pay high prices for small sites. The municipality, he said, would have little expense beyond lighting and policing, and would in time get a high return on the transaction. It was proposed to allow eight or ten houses to the acre, including roads, and at present there are nearly 500 plots.

THE SHORTAGE OF BRICKLAYERS.

THE Director of Housing of Edinburgh, Mr. Horsburgh Campbell, states :—The city has on hand at present schemes for the erection of 1,774 houses, representing its immediate housing programme. To carry through this work within a reasonable period a staff of 250 bricklayers or masons and bricklayers combined, is required. Apart from the Corporation schemes, there are housing contracts proceeding in Edinburgh (including the erection of fully 200 houses of the villa class), requiring approximately 600 masons and bricklayers. The total number of stonemasons in the city is 460, and of bricklayers 180—a total of 640. Of this number, only 25 men are engaged in the work of house building for the Corporation. It is apparent, the Director of Housing observes, how deficient is the skilled man-power available for the city's housing needs. A ten-fold increase is required. In pre-war times there were in the city 920 masons and bricklayers, so that the present figure shows a reduction of 280. During recent months 82 Edinburgh masons and bricklayers have left for America, where the wages offered by public advertisement represent £18 per week for a bricklayer.

The first regrettable result of this insufficiency is the practice of excess payments above the standard rates of wages to the men employed by certain of the employers in order to retain the men they have, and, if possible, to induce further men into their service from other works and employers.

The following suggestions are put forward :—(1) Representation to the Trade Unions to find men for the housing work ; and to increase the number of apprentices and trainees. (2) Representation to the master builders not to offer inducements above the standard rate of pay. (3) Some possible restriction against the erection of buildings which—without injury to the country—could well abide their time and stand postponed. (4) In general, making it obligatory by Statute that housing work shall have precedence. (5) The adoption for houses of the kind which concerns the Committee, of materials —other than brick or stone—so as to utilise labour at present unemployed. (6) Building by machinery. This idea, although under trial and practical test, is not yet sufficiently developed for recommendation.

Side by side with this great shortage of skilled artisans is the fact that there are to-day in the City of Edinburgh about 12,500 men registered as unemployed, the cumulative cost of which to the citizens of Edinburgh is about £500,000 per annum, producing no economic return.

Dealing with the possibility of using concrete for house building, the Director of Housing observes :—" I am satisfied that the system holds the possibilities required to relieve the emergency with which the Committee are now confronted—that is, a hold-up of housing work ; or, in the alternative and constructive point of view, making the housing needs to subserve the cause of the unemployed, and so absorb hundreds of men in the city now workless. It might be added that the work could be undertaken by local contractors employing wholly local men."

NEW INVENTIONS.

"Easy Access" Stairs.

THE stairs illustrated have been specially designed to give easy and safe access to the usually wasted space in the roof void. By using the stairs, of which the accompanying illustrations give the general principle, the often considerable space in the loft becomes easily accessible.

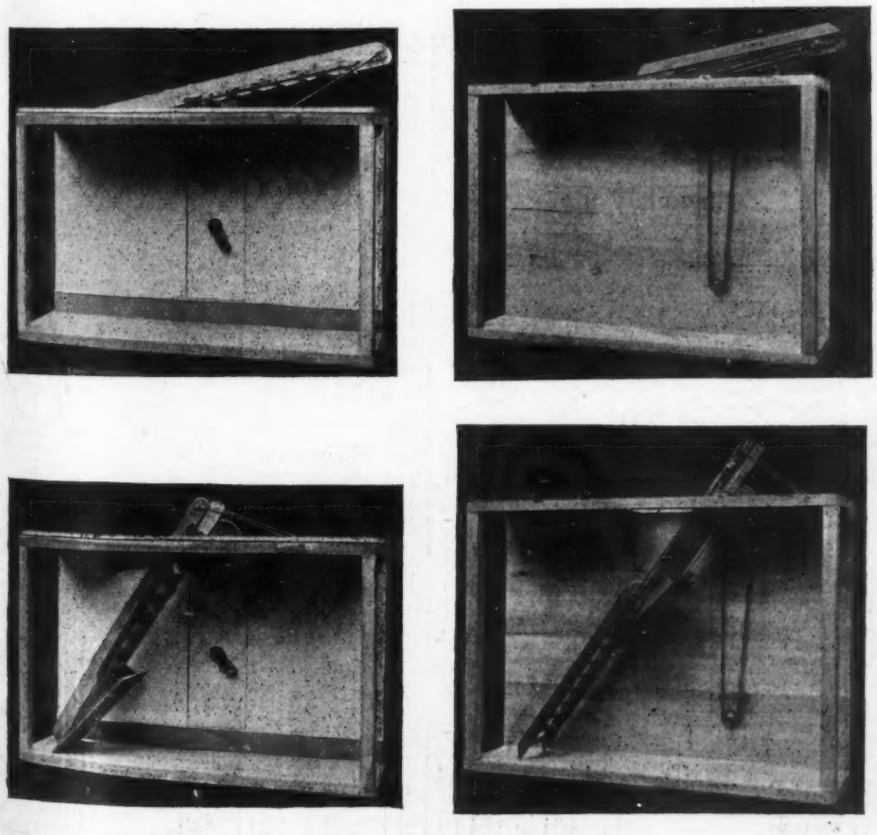
The principle is as follows :- The undersides of the steps are provided for about half the upper length with racks which engage pinions on a shaft at one end of the trap opening. (On another pattern the shaft may be fitted with drum-barrels, from which wire ropes lead to the top and bottom ends of the steps instead of racks and pinions). Safety clips prevent the stairs coming off the pinions or drum-barrels. The shaft is fitted with a chain sprocket or worm wheel, which is operated by chain or worm from a handle situated at a convenient place on the wall below the trap opening. The handle may be detachable or folding, so that it does not protrude beyond the wall into which it is recessed, and is covered—when out of use—by a small door. The chain or worm is also encased. The lower end of the ladder itself forms the trap cover. At the extreme top end of the ladder are attached fulcrum links, the other end of which are pivoted either on or below the loft floor. When out of use the steps are thus housed in the loft itself, but are ready at hand whenever required.

The overhanging portion being longer than that in the trap opening, the weight of it will keep the trap well closed, and exclude draught and dust. By the single operation of turning the handle either way the stairs are lowered or hoisted, the trap cover automatically following the stairs. The lower end of the stairs travels in a practically vertical line between floor and ceiling, and therefore requires but little room.

The space required in the loft for the ladder when housed does not exceed 6 ft. lengthwise and about 3 ft. headroom, but it would naturally be placed where there was greatest headroom for the person using the steps.

Another pattern on the extending principle is intended for use in lofts with very limited space. It requires only about 4 ft. 6 in. lengthwise and about 2 ft. 6 in. upwards.

The patentee, Mr. M. T. Berner, is prepared to grant licences for the manufacture of the ladders.



Easy Access Stairs.

WATERPROOF SAND-PAPER.

THE Painting Trade Materials Committee write :—

"It is understood that legislation will be introduced to give effect, either in whole or in part, to the proposals of the Geneva International Labour Conference of 1921 in regard to the use of white lead in painting. The Government have not yet announced their decision as to whether this legislation will include any degree of prohibition of the use of white lead for the painting of interiors, but it is extremely likely that it will include regulations for the use of white lead wherever it is not prohibited. These regulations may be expected to comprise the set of regulations drawn up at the conferences of the Painters' and Decorators' Industrial Joint Council of Great Britain and representatives of the Home Office. One of these (Regulation 3 of the draft code) provides that 'surfaces painted with lead paint shall not be rubbed down or scraped by a dry process.' In view of the change of practice which will, in some cases, be necessitated, and in view of the well-known disadvantages of using ordinary sandpaper or glasspaper with water, the Painting Trade Materials Committee of Great Britain and Ireland think it right to call the attention of members of the trade to the introduction of waterproof sandpaper, of which more than one satisfactory make is on the market. While the chief merit of waterproof sandpaper in regard to the regulations is that it enables water to be used so as to avoid the creation of harmful lead dust, the use of waterproof sandpaper has the advantages that when clogged by the particles of paint it can be made effective by wiping or rinsing in water, and that the scratching of the surface by detached particles of abrasive is avoided. The lubricant action of the water also promotes smoothness of surface and rapidity of working. It appears to the Committee to be in the interests of the craft that members should acquaint themselves with waterproof sandpaper in order that they may have formed their own opinion as to its practicability for the purpose of their particular requirements before the Regulations come into operation, and they will also doubtless form their own opinion as to the relative merits of the different makes of waterproof sandpaper now on the market."

BUILDING ACTIVITIES IN EDINBURGH.

AN Edinburgh correspondent has supplied us with the following information :—

BOTH in the centre and suburbs of Edinburgh there is evidence of building activity. Bakers have been extending their premises in Princes-street, notably McVitie & Guest, at the west end, who now own the solid block from Charlotte-street to the entrance to their premises in Princes-street. Mackie & Son, having dislodged an adjoining firm, have taken over the premises, which are being organised for their business. Both these two bakers and confectioners, in addition to their normal business, have tea-rooms and luncheon-rooms. There is at present being erected on ground reclaimed from the Canal basin at Fountainbridge, off Lothian-road, one of the largest bakeries in the Kingdom, for St. Cuthbert's Co-operative Store. The iron girders and beams are supplied by Redpath, Brown & Co.; there has been a deficiency in skilled bricklayers which has delayed operations. Mr. William Grant, managing director of the biscuit firm of McVitie & Price, is to receive the freedom of Edinburgh shortly as a recognition of his generosity in giving £100,000 towards the conversion of the Advocates' Library into a Scottish National Library.

In the last report by Mr. Horsburgh Campbell, Director of Housing of Edinburgh, it was pointed out that the city had on hand at present schemes for the erection of 1,774 houses, representing its immediate housing programme. To carry this through 250 masons and bricklayers are required. Apart from Corporation schemes there are housing contracts proceeding in Edinburgh, including the erection of about 200 houses of the villa class, requiring about 600 masons and bricklayers. The total of masons and bricklayers in the town is 640, and of this number only 25 are engaged in Corporation work. There are 12,500 men registered as unemployed in Edinburgh, so that scarcity of skilled workmen is where the shoe pinches here as elsewhere. As a way out of these difficulties the report of a deputation from Edinburgh Town Council, which visited Newcastle and Leeds, has been favourably received upon the construction of concrete houses, similar to what was seen in England. The method recommended was the duo-slab system —a series of concrete slabs laid on edge one upon the other, without any liquid cement or mortar, the slabs being laid on edge in dry contact. These slabs are 4 ft. in length and 3 ft. high, composed of clinker, sand and cement. The mixing for the slabs is done by a concrete-mixing machine; when formed it is left until dry enough for use. The placing of the slabs can be done by unskilled labour. Newcastle Corporation has erected 311 houses by this system, and Leeds 1,600.

The sub-division of houses in the New Town, under Mr. John White, still proceeds, as also by Mr. A. W. Millar, F.S.I., in the old town. Only six individuals desired to avail themselves of the offer made by the Corporation in the way of a subsidy to builders or to private individuals who wished to erect houses for their own occupation. The subsidy is high, ranging from £85 to £150 for houses of three, four and five apartments. The lowest figure for a four-apartment house under this scheme is £570. The great difficulty, as already indicated, is in shortage of labour. The Corporation has schemes of reconstruction work in slum areas in Grassmarket and Leith. Approval was given by the Town Council for the spending of £283,000 there. Some time ago Principal Laurie explained to a meeting of the Royal Society of Arts a method adopted at some shale works for the utilisation of the shale in making bricks. If this method succeeds it might lessen the disfiguring mountains of shale refuse in the oil districts. Road widening has been done, or is still in progress, at Colinton-road, Morningside-road, Braid Hills-road, and elsewhere. In this last, fringing the great golf course, the road is being straightened and greatly improved.

RATES OF WAGES IN THE BUILDING TRADE.

The following are the rates of wages in the building trade in England and Wales. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur :—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Bricklayers' Labourers.	Plasterers Labourers.
Aberdare	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Accrington	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Alfrincham	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Ashton-under-Lyne	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Barnsley	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Barrow-in-Furness	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Barry	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Bath	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0	
Bedford	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	0/11½	
Birkenhead	1/9	1/9	1/8½	1/9	1/9	1/9	1/8½	1/4	
Birmingham	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Bishop Auckland	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Blackburn	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Blackpool	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Bolton	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Bournemouth	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Bradford	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Bridgwater	1/3	1/3	1/3	1/3	1/3	1/3	1/3	0/11½	
Brighton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Bristol	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Burnley	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Burton-on-Trent	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½	
Bury	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Cambridge	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	0/11½	
Cardiff	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Chatham	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0	
Chelmsford	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	0/11½	
Cheltenham	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0	
Chester	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Chesterfield	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Colchester	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	0/11½	
Coventry	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Crewe	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½	
Darlington	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Derby	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Doncaster	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Dudley	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½	
Durham	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
E. Glam.(Mon. Vall.)	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Eastbourne	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Exeter	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/0½	
Folkestone	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	0/11½	
Gloucester	1/4	1/4	1/4	1/4	1/4	1/4	1/3	1/0	
Grantham	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½	
Grays	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/6½	1/2½	
Grimsby	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Great Yarmouth	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	0/11½	
Guildford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Halifax	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Harrogate	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Hartlepools	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Hastings	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	0/11½	
Hereford	1/4	1/4	1/4	1/4	1/4	1/4	1/3	1/0	
Huddersfield	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Hull	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Ipswich	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	0/11½	
Lancaster	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½	
Leamington Spa	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½	
Leeds	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Leicester	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Lichfield	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½	
Lincoln	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Liverpool	1/9	1/9	1/8½	1/9	1/9	1/9	1/8½	1/4	
Llanelly	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
London	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/6½	1/2½	
Loughborough	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Luton	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	0/11½	
Maidstone	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0	
Manchester	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Mansfield	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Merthyr Tydfil	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Middlesbrough	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Newcastle-on-Tyne	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Newport, Mon.	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Northampton	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½	
Norwich	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0	
Nottingham	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Oakham	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0	
Oldham	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Oxford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Plymouth	1/6	1/6	1/6	1/6	1/6	1/6	1/5	1/1½	
Pontypridd	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Portsmouth	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Preston	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Reading	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Rochdale	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Rochester	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0	
Rugby	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½	
St. Albans	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	0/11½	
St. Helen's	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Scarborough	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½	
Sheffield	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Shrewsbury	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½	
Southampton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Southend-on-Sea	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Southport	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
South Shields	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Stockport	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Stockton-on-Tees	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Stoke-on-Trent	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Stroud	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3	0/11½	
Sunderland	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Swansea	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Swindon	1/4	1/4	1/4	1/4	1/4	1/4	1/3	1/0	
Taunton	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	0/11½	
Torquay	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Tunbridge Wells	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Wakefield	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Walsall	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½	
Warrington	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
West Bromwich	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Wigan	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Windsor	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Wolverhampton	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½	
Worcester	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½	
York	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½	

(For rates of wages in the Building Trade in Scotland, see page 505.)

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, &c., may be obtained.

BUILDING AND PAINTING.

SEPTEMBER 29.—**Bangor Teifi.**—CHURCH ROOM.—For the erection of a church room, with out offices, at Bangor Teifi. Mr. D. Emrys Rees, Bangor Teifi. Pentre Court.

SEPTEMBER 29.—**Holsworthy.**—LYCH GATE.—For building a new lych gate at Stanbury Cross, Holsworthy, for the U.D.C. Mr. Claude Kinsman, Clerk, Council Offices, Holsworthy.

SEPTEMBER 29.—**South Molton.**—HOUSES.—Erection of two blocks of five houses, for the T.C. Mr. P. G. Cocks, Borough Surveyor, South Molton, Devon. Deposit £2 2s.

SEPTEMBER 29.—**Tiverton.**—BATH.—Construction of an open-air bath in reinforced concrete, for the T.C. Mr. J. Siddalls, Borough Engineer, Town Hall, Tiverton. Deposit £2 2s.

OCTOBER 1.—**Almondbury.**—DYEHOUSE.—Erection of dyehouse at Northfield Mills, Almondbury. Messrs. J. Berry & Sons, architects, 3, Market-place, Huddersfield.

OCTOBER 1.—**Beeston.**—HOUSES.—Erection of 16 houses in Farfield-avenue, Beeston, for the U.D.C. Mr. E. A. Bush, Surveyor, Public Offices, Beeston. Deposit £2 2s.

OCTOBER 1.—**Dukestown.**—SCHOOL.—Erection of a new temporary infants' school to accommodate 200 children at Dukestown, near Tredegar, for the Monmouthshire E.C. Mr. John Bain, F.R.I.B.A., County Hall, Newport, Mon.

OCTOBER 1.—**Edinburgh.**—BUILDINGS.—For the erection of two blocks of buildings (nine houses in all), Clark-avenue, Bangholm, Ferry-road, for the Corporation. Mr. J. D. Gibson, Surveyor, 60, Frederick-street.

OCTOBER 1.—**Gillingham (Kent).**—ALTERATIONS.—For alterations, painting, &c., at the Infectious Diseases' Hospital. Mr. J. L. Redfern, Borough Surveyor, Gillingham.

OCTOBER 1.—**Haddington.**—HOUSES.—Erection of six houses, for the T.C.: Messrs. Reid & Macleod, architects, Haddington.

OCTOBER 1.—**Hatfield Heath.**—REPAIRS.—Repairs to church. Rev. E. A. Ducane, Vicarage, Harlow, Essex.

OCTOBER 1.—**Hertfordshire.**—COTTAGES.—Erection and completion of 32 detached cottages at various places in Hertfordshire, for the C.C. Mr. A. Ernest Prescott, M.Inst.C.E., Lieut.-Col., County Surveyor and Architect, Hatfield. Deposit £1 1s.

OCTOBER 1.—**Newbridge.**—ADDITIONS.—For additions to St. Thomas's College, Newbridge, Co. Kildare, for the Dominican Fathers. Messrs. Morris & Kavanagh, quantity surveyors, 68, Harcourt-street, Dublin. Deposit £3 3s.

OCTOBER 1.—**Stoke-on-Trent.**—PAINTING.—For painting children's homes for the B.G. Mr. A. R. P. Piercy, Architect, Union Offices, Stoke. Deposit £1 1s.

OCTOBER 1.—**Tredegar.**—ERECTION OF SCHOOL.—For erecting a new temporary Infants' School for the Monmouthshire Education Committee at Dukestown, Tredegar. School to accommodate 200 children. Local labour to be employed so far as possible. Mr. John Bain, F.R.I.B.A., County Hall, Newport, Mon.

OCTOBER 1.—**Warrington.**—SUB-STATION.—Erection of a new sub-station in Golborne-street, for the T.C. Mr. F. V. L. Mathias, Borough Electrical Engineer, Electricity Works, Warrington. Deposit £1 1s.

OCTOBER 2.—**Cardiff.**—SUB-STATION.—Erection of sub-station, St. Michael's-road, Llandaff, for the T.C. Electrical Engineer, The Hayes, Cardiff. Deposit £1 1s.

OCTOBER 2.—**Coxhoe.**—RENOVATIONS.—For renovating outside of Primitive Methodist Church, Quarrington-hill, near Coxhoe. Mr. G. Smith, 10, Steetley-terrace, Quarrington-hill, Coxhoe.

OCTOBER 2.—**Featherstone.**—PAINTING.—For the painting, distempering, &c., of the Lister Baths, Wakefield-road, for the U.D.C. Mr. Samuel Chesney, Surveyor, Council Offices, Featherstone.

OCTOBER 2.—**Greenwich.**—HOUSES.—Erection of 50 houses in two sections, for the B.C. Town Clerk, Town Hall, Greenwich. Deposit £2 2s.

OCTOBER 2.—**Oldham.**—PAINTING.—For painter's work at Central and Northmoor Libraries, for the T.C. Borough Librarian, Oldham.

OCTOBER 2.—**Thornhill.**—PAINTING.—For cleaning and decorating inside and outside Thornhill Wesleyan Chapel and Sunday School. Mr. J. R. Walshaw, Church-lane, Thornhill.

OCTOBER 3.—**Leicester.**—EXTENSION OF HOSPITAL.—For the extension of the Isolation Hospital, for the T.C. City Treasurer, Town Hall, Leicester. Deposit £5.

OCTOBER 3.—**Ramsgate.**—SEA WALL.—For the construction complete of a new reinforced concrete sea wall, on the indented bar principle, on the foreshore of the St. Lawrence Cliffs Estate, for the Borough. Mr. T. G. Taylor, Borough Engineer, Borough Engineer's Office, Albion House, Ramsgate.

OCTOBER 3.—**Westcraigs.**—BRIDGE.—Improvement of Westcraigs Bridge, Westcraigs. Mr. W. A. Chapman, Road Surveyor, Airdrie.

OCTOBER 4.—**Blackpool.**—SCHOOL.—Erection of proposed Tyldesley Council School in Condor Grove, off Whitegate Drive, for the Blackpool Education Committee. Mr. Francis Wood, M.Inst.C.E., Borough Engineer and Surveyor, Municipal Buildings, Blackpool. Deposit £2.

OCTOBER 4.—**Pleasley.**—INSTITUTE.—Erection of Miners' Institute. Messrs. Warren & Bocock, architects, Sutton-in-Ashfield. Deposit £2 2s.

OCTOBER 4.—**Tilbury (Essex).**—TELEPHONE EXCHANGE.—Erection of a new telephone exchange at Tilbury, for the Commissioners of His Majesty's Office of Works. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W. 1. Deposit £1 1s., payable to the Secretary.

OCTOBER 5.—**Bootle.**—DRESSING BOXES, &c.—Construction of new galleries and portable dressing boxes in the gentlemen's plunge bath, Balliol-road Baths, for the T.C. Borough Engineer, Town Hall, Bootle.

OCTOBER 5.—**Nottingham.**—POWER STATION.—Erection of buildings in connection with North Wilford Power Station, for the T.C. Mr. T. Wallis Gordon, City Engineer, Guildhall, Nottingham. Fee £2.2

OCTOBER 7.—**Edinburgh.**—HOUSES.—Erection of two blocks of buildings (composing nine houses in all), two stories in height, at Bangholm, for the T.C. Mr. George Simpson, architect, 14, Hill-street, Edinburgh.

OCTOBER 7.—**Greenwich.**—REPAIRS.—Execution of repairs, on a schedule of prices, to property on the Roan Estates during the period ending March 31, 1924. Mr. P. B. Dannatt, Surveyor to the Foundation, 18, Nelson-street, Greenwich, S.E. 10.

*OCTOBER 8.—**Enfield.**—HOUSES.—Erection of 34 houses in Nag's Head and Scotland Green-roads, Ponder's End, Middlesex, for the Enfield U.D.C. The Council's Surveyor, Public Offices, Enfield, Middlesex. Deposit £2 2s.

OCTOBER 8.—**Pontypool.**—ADDITIONS, &c.—For alterations and additions to the Old Penygarn Baptist Chapel, Pontypool, for the Trustees. Mr. A. Langley, 70, Hanbury-road, Pontnewynydd, Pontypool.

OCTOBER 9.—**Basingstoke.**—POST OFFICE.—Erection of a new Post Office at Basingstoke for the Commissioners of His Majesty's Office of Works. Contracts Branch, H.M.O.W., King Charles-street, London, S.W.1. Deposit £1 1s. (payable to the Secretary).

OCTOBER 9.—**Buxton.**—LAVATORIES.—Erection of public underground lavatories in the Market-place, for the T.C. Mr. F. Langley, Borough Engineer, Town Hall, Buxton. Deposit £2 2s.

*OCTOBER 9.—**Dartford.**—COURT HOUSE.—Court House and other works at Northfleet Police Station, for the Kent Standing Joint Committee, County of Kent. Mr. F. W. Ruck, the County Architect, 83, Week-street, Maidstone. Deposit £2 2s.

OCTOBER 9.—**Perran.**—VIADUCT.—Reconstruction of Perran Viaduct, near Perranwell Station, Falmouth Branch, for the Great Western Railway Co. Chief Engineer, Paddington Station, W.

OCTOBER 9.—**Swansea.**—WALLS.—For the construction of retaining walls, bridges, and other works, at High-street Station, Swansea, for the Great Western Railway Co. Chief Engineer, Paddington Station, W.

OCTOBER 9.—**St. Faith's.**—BRIDGE.—Erection of a reinforced concrete bridge over the Ford at Ringland, for the R.D.C. Mr. Charles Row, Clerk, 1 Redwell-street Bank Plain, Norwich.

OCTOBER 9.—**Yorkshire.**—REPAIRS.—Adaptation and repairs to four farmsteads on the Gargrave Estate, for the West Riding C.C. County Land Agent, County Hall, Wakefield. Deposit £1.

OCTOBER 10.—**Darton.**—SCREEN.—Erection of a folding screen at Darton Infants' Council School. Education Department, County Hall, Wakefield.

OCTOBER 10.—**Leeds.**—TELEPHONE EXCHANGE.—Erection of a telephone exchange, &c., at Headingley, Leeds, for the Commissioners of His Majesty's Office of Works. Contracts Branch, H.M.O.W., King Charles-street, London, S.W.1. Deposit £1 1s. (payable to the Secretary).

OCTOBER 10.—**London.**—ALTERATIONS.—Alterations for the provision of washing and changing rooms for outdoor female staff at the Eastern Fever Hospital, Homerton-grove, for the Metropolitan Asylums Board. Office of the Board, Victoria Embankment, E.C. 4. Deposit £1.

OCTOBER 11.—**Llandudno.**—LAVATORIES.—Construction of underground lavatories with reinforced concrete roof in Lower Mostyn-street, for the U.D.C. Mr. W. T. Ward, Surveyor, Town Hall, Llandudno.

*OCTOBER 12.—**Coventry.**—DEMOLITON WORK.—For demolition work at the head Post Office, Coventry, for the Commissioners of His Majesty's Office of Works. Contracts Branch, H.M.O.W., King Charles-street, London, S.W.1. Deposit £1 1s. (payable to the Secretary).

*OCTOBER 13.—**Tilbury, Essex.**—HOUSES.—Erection of a further 125 houses in Tilbury for the U.D.C. Mr. A. W. Buckner, Clerk to the Council, Council Offices, Tilbury.

OCTOBER 15.—**Salford.**—GARAGE.—For building a motor garage adjoining the Central Fire Station, for the T.C. Borough Engineer, Town Hall, Salford. Deposit £2 2s.

*OCTOBER 16.—**London, W.**—EMPLOYMENT EXCHANGE.—Erection of Edgware-road Employment Exchange, W., for the Commissioners of H.M. Office of Works. Contracts Branch, H.M.O.W., King Charles-street, London, S.W.1. Deposit £1 1s. (payable to the Secretary).

OCTOBER 16.—**Margate.**—PAVILION.—Erection of a steel and timber bathing pavilion, for the T.C. Mr. E. A. Borg, Borough Engineer, 13, Grosvenor-place, Margate. Deposit £5.

*OCTOBER 17.—**Gosforth.**—POST OFFICE AND TELEPHONE EXCHANGE.—Erection of a Post Office and Telephone Exchange at Gosforth, for the Commissioners of H.M. Office of Works. Contracts Branch, King Charles-street, London, S.W.1. Deposit £1 1s. (payable to the Secretary).

OCTOBER 17.—**Manchester.**—SUB-STATION.—Erection of the new Hulme Sub-Station, for the T.C. Mr. F. S. Hughes, Secretary, Electricity Department Town Hall, Manchester. Deposit £2 2s.

*OCTOBER 18.—**London, E.C.**—TELEPHONE EXCHANGE.—Erection of Bishopsgate Telephone Exchange, E.C., for the Commissioners of H.M. Office of Works. Contracts Branch, H.M.O.W., King Charles-street, London, S.W.1. Deposit £1 1s.

BUILDING TRADE WAGES IN SCOTLAND.*

THE following are the present rates of wages in the building trade in the principal towns of Scotland. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Brick-layers' Labourers.	Plasterers' Labourers.
Aberdeen	1/7	1/8	1/7	1/8	1/7	1/7	1/4½	1/-	
Airdrie	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2½	
Alexandria	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2	
Arbroath	1/7	1/6	1/6	1/7	1/6	1/6	1/5	1/1	
Ayr	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2½	
Bathgate	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/1 to 1/2	
Blairgowrie	1/7	—	1/7	1/7	1/7	1/7	1/6½	—	
Bo'ness	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2	
Coatbridge	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2½	
Dumbarton	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2	
Dumfries	1/5	1/5	1/5	1/6	1/5	1/6	1/5	1/1 to 1/2	
Dundee	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2½	
Dunfermline	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2½	
Edinburgh	1/7	1/7	1/7	1/8	1/8	1/7	1/6½	1/2½	
Falkirk	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2½	
Fort William	1/7	1/6	1/6	1/7	1/6	1/6	1/6½	1/1½	
Galashiels	1/5	1/5	1/5	1/6	1/5	1/5	1/5½	1/1	
Glasgow	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2½	
Greenock	1/7	1/7	1/7	1/8	1/7	1/7	1/5½	1/1 to 1/2½	
Hamilton	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2½	
Hawick	1/5	1/5	1/5	1/6	1/5	1/5	1/5½	1/1½	
Helensburgh	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2½	
Inverness	1/3½	—	1/3	1/4	1/4½	1/4	1/3½	10d. to 1/2	
Kilmarnock	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2½	
Kirkcaldy	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2½	
Kirkwall	1/7	1/5	1/8	1/4	1/4	1/4	1/4	1/-	
Lanark	1/7	1/7	1/7	1/8	1/7	1/7	1/5½	1/2½	
Leith	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2½	
Motherwell	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2½	
Perth	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2½	
Stirling	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2½	
Stirlingshire (Eastern District)	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2½	
Wishaw	1/7	1/7	1/7	1/8	1/7	1/7	1/6½	1/2½	

* The information given in this table is copyright. The rates of wages in the various towns in England and Wales are given on page 504.

✱OCTOBER 19.—**London, N.W.**—GARAGE AND STORE.—Erection of a garage and store at Dollis Hill Research Station, N.W., for the Commissioners of H.M. Office of Works. Contracts Branch, H.M.O.W. King Charles-street, London, S.W.1. Deposit £1 1s. (payable to the Secretary).

OCTOBER 20.—**Leckaun.**—RESIDENCE.—Erection of a parochial residence at Leckaun, Co. Leitrim, for Rev. Francis Prior, C.C. Mr. P. J. Brady, architect Broomfield House, Ballyhaise, Co. Cavan.

OCTOBER 20.—**Near Abergavenny (Mon).**—HALL, &C.—For erecting a parish hall at Llanvihangel Crucorney (near Abergavenny), with submission of alternative estimate for same, if erected. of timber framing and galvanised corrugated sheeting. Mr. B. J. Francis, architect, Abergavenny. Names of intending tenders must be sent to Mr. W. H. Wood, Clerk to Parish Council, 1, Pant Glas, Pandy, near Abergavenny, by September 15th.

OCTOBER 29.—**Durham.**—SCHOOL.—Erection of Kirk Merrington New School, for the C.C. Mr. F. Willey, F.R.I.B.A., 34, Old Elvet, Durham.

✱NOVEMBER 2.—**London, N.9.**—EXTENSIONS.—Extensions to the Edmonton United Se vices Club, Ltd. Registered Office, 99, Hertford-road, Edmonton, N.9. Plans and specifications may be seen at the office on Wednesday, Thursday and Friday, October 17, 18, and 19, between the hours of 11 a.m. and 3 p.m. Mr. J. W. Shaw, Secretary, 99, Hertford-road, Edmonton, N.9.

NOVEMBER 30.—**Singapore.**—POST OFFICE.—Erection of new general post office, Singapore. Crown Agents for the Colonies, 4, Millbank, S.W.1. Deposit £10.

NO DATE.—**Abbot's Langley.**—HOUSES.—Erection of three detached houses at Abbot's Langley. Messrs. Stimpson, Lock & Vince, architects, Watford.

NO DATE.—**Banff.**—HOUSES.—For the erection of three blocks of houses at Banff. Messrs. Sutherland & Clement George, architects, 26, Crown-street, Aberdeen.

NO DATE.—**Belper.**—PAINTING.—For external painting of the workhouse and hospital buildings and the internal decoration of the board room and offices, for the B.C. Mr. John B. Mason, architect, of Duffield, near Derby. Deposit £1 1s.

NO DATE.—**Buckley.**—PAINTING.—For painting and decorating Buckley Congregational Church throughout. Mr. T. Crozier Jones, The Cross, Buckley, near Chester.

NO DATE.—**Carmarthen.**—DRILL HALL.—For erection, for the Carmarthenshire Territorial Association, of a drill hall at the Barracks, Carmarthen. Sir C. T. Ruthen & Co., Bank Chambers, Heathfield-street, Swansea, and 44, Bedford-row, London, W.C. 1.

NO DATE.—**Kirkcaldy.**—SHOPS.—For the erection of four shops in Kirkcaldy, for the Pathhead and Sinclairtown Reform Co-operative Society, Ltd. Mr. A. Welsh, architect, 233, High-street, Kirkcaldy.

NO DATE.—**Leven.**—HOUSES.—For the erection of eight blocks of four houses each at Leven. Mr. A. C. Dewar, Town Clerk, Municipal Offices, Leven. Deposit £2 2s.

✱NO DATE.—**London.**—HOUSES.—For the conversion of two houses in South Kensington. Plumbing, slabbing, joinery, electric lighting, distempering, painting. F. Nixon, 12, Emper r's-gate, S.W.7.

NO DATE.—**Mapplewell.**—LUB.—For a new working men's club at Mapplewell, near Barnsley. Whole works or separate trades. Newbald & Hartley, 1, Barstow-square, Wakefield.

NO DATE.—**Renton.**—HOUSES.—For the erection of six blocks of 24 houses at Renton, adjacent to the first development for the Western District of the County of Dumbarton. Mr. J. Weekes. Deposit £1 1s.

NO DATE.—**Shotts.**—HOUSE.—For the erection of a five-apartment house at Springhill-road, Shotts, Lanarkshire. Messrs. Peter Lawrence & Co., F.F.S., Surveyors, 50a, Frederick-street, Edinburgh.

FURNITURE, MATERIALS, etc.

OCTOBER 1.—**Burnham-on-Sea.**—MATERIALS.—150 tons granite macadam, 1,000 tons limestone macadam, 200 tons limestone binding gravel, for the U.D.C. Mr. Wm. H. Chowins, Surveyor, Public Offices, Burnham-on-Sea.

OCTOBER 1.—**Ealing.**—MATERIALS.—Supply of limes, pipes, &c., cement, ironmongery, iron castings, paints, &c., to the B.C. Mr. W. R. Hicks, Borough Surveyor, Town Hall, Ealing.

OCTOBER 1.—**Gellygaer.**—MATERIALS.—Supply of materials to the U.D.C. Mr. F. Read, Surveyor, Council Offices, Hengoed.

OCTOBER 1.—**Loughton.**—MATERIALS.—Supply of granite, hoggin, kerb, &c., to the U.D.C. Mr. H. White, surveyor, Loughton, Essex.

OCTOBER 1.—**Warrington.**—MATERIALS.—For concrete flags, Rawtenstall flags, Rawtenstall kerbs, sewer pipes, &c., copper slag, cement, bricks (St. Helens and blue), for the T.C. Mr. A. M. Ker, Borough Engineer, Warrington.

OCTOBER 2.—**Littleborough.**—MATERIALS.—Supply of 2,300 tons of 4 in. by 5 in. granite setts, for the U.D.C. Mr. G. H. Wild, Surveyor, Council Offices, Littleborough.

OCTOBER 2.—**Maesteg.**—SUPPLIES.—For supplying to the U.D.C. the following materials for a period of 12 months: (1) Cement, (2) hay, (3) corn and bran, (4) ironmongery, (5) stoneware pipes, (6) bricks, (7) stone, flagging, kerb and channel, (8) gas tar, (9) disinfectants, (10) gas mantles and burners, (11) harness repairs, (13) lime and mortar, (14) coal, &c. Separate contracts for each item. Mr. S. J. Harper, M.S.A., Council Offices, Talbot-street, Maesteg.

OCTOBER 2.—**Margate.**—MATERIALS.—Cement, bricks, ironwork, sanitary pipes, &c. Mr. E. A. Borg, Borough Engineer, Margate.

OCTOBER 2.—**Margate.**—ROLLER.—For 8- to 10-ton road roller, for the T.C. Town Clerk, Margate.

OCTOBER 3.—**Edinburgh.**—SAND.—Supply of 9,000 tons of clean, sharp Loch Etive sand to the T.C. Messrs. J. & A. Leslie & Reid, 29, Waterloo-place, Edinburgh. Deposit £5.

OCTOBER 4.—**Hemel Hempstead.**—MATERIALS.—Supply of various materials for six months to the T.C. Mr. A. E. Usher, Town Clerk, Hemel Hempstead.

OCTOBER 5.—**London.**—MATERIALS.—Supply to the Director-General, India Store Department, of (1) steam hammer, (2) paint. Store Dept., 14, Belvedere-road, S.E.

OCTOBER 5.—**Birkenhead.**—STORES.—For supply of stores to the Mersey Railway Co. Mr. J. Shaw, General Manager, Central Station, Birkenhead.

OCTOBER 5.—**Saffron Walden.**—GRANITE AND SLAG.—For supply of granite and slag to the R.D.C. Surveyor, King-street, Saffron Walden.

OCTOBER 9.—**Islington.**—MATERIALS.—Supply of salt-glazed ware pipes and gullies, river ballast, hoggin, hardcore or clinker, bricks and Portland cement to the B.C. Borough Engineer, Municipal Offices, Islington, N.1.

ENGINEERING, IRON AND STEEL.

SEPTEMBER 29.—**Keel (Ireland).**—BRIDGE.—For reinstating the superstructure of the iron bridge at Keel (near Ballinrobe), for Mayo C.C. County Surveyor, Courthouse, Castlebar, Co. Mayo.

SEPTEMBER 29.—**Thetford.**—CAST-IRON PIPES.—Supply of 1,800 yds. of 7 in. and 4 in. cast-iron pipes, &c., for the T.C. Messrs. Sands & Walker, engineers, Milton Chambers, Nottingham. Deposit £3 3s.

OCTOBER 1.—**Bristol.**—HEATING, &C.—For the heating and ventilating of the Council School at Shirehampton, for the Bristol Education Committee. Mr. A. E. Oaten, P.A.S.I., architect, Phœnix Chambers, 22, Clare-street, Bristol. Deposit £1 1s.

OCTOBER 1.—**Egypt.**—STEAM LAUNCHES.—For three 40 ft. steam launches, for Ministry of Public Works, Egypt. Inspecting Engineer, Egyptian and Sudan Governments, Queen Anne's Chambers, Westminster, S.W. 1.

OCTOBER 1.—**Kenilworth.**—RESERVOIR.—For a covered service reservoir, 500,000 gallons capacity, for the U.D.C. Mr. Sholto Douglas, Surveyor, Council Offices, Kenilworth.

OCTOBER 1.—**Llanmorlais (Glam).**—DRIVAGE.—For sinking a new slant at the Brynlais Collieries, Llanmorlais. Distance 200 yds., about; inclination 2 ft. per yd.; size of collar, 5½ ft.; height, 5½ ft. from rail; width, 9 ft. Drilling machines by compressed air and explosives supplied by company. The Secretary, Colliery Offices, Llanmorlais.

OCTOBER 2.—**London.**—AIR WASHING MACHINES.—Supply and installation of two air washing machines, with pumps, motors, &c., at the Imperial College of Science, South Kensington. Contracts Branch, H.M. Office of Works. King Charles-street S.W. 1. Deposit £1 1s.

OCTOBER 2.—**Portland.**—STEEL MAINS.—Supply of 2,820 yds. of 6 in. steel main to the U.D.C. Mr. W. Shadbolt, Engineer, Gas Works, Portland.

OCTOBER 3.—**London.**—ELECTRIC LIGHTING.—For electric wiring of New Science Museum, South Kensington, for H.M. Commissioners of Works. Contracts Branch, H.M. Office of Works, King Charles-street, S.W. Deposit £1 1s.

OCTOBER 3.—**Rochdale.**—CONCRETE WORKS.—For cementing in concrete the bed of river Roch, &c., for T.C. Mr. S. H. Morgan, Borough Engineer, Town Hall, Rochdale. Deposit £5.

OCTOBER 5.—**Hanwell.**—ELECTRIC LIGHTING.—Extension of the electric lighting installation at the Central London District School, Greenford-avenue, Hanwell, W. 7. Mr. George P. Morrell, Clerk to School, Hanwell. Deposit 10s.

OCTOBER 6.—**Kirkby Stephen.**—BOILER.—Provision and setting to work of a Cornish boiler, together with work in connection with heating, domestic hot water, laundry, and kitchen apparatus, at the Poor Law Institution, for the B.G. Mr. G. J. Gibbs, 7, Lune-street, Preston. Deposit £2 2s.

OCTOBER 8.—**Harrogate.**—DEPOT.—For roadworks, sewering, construction of siding, retaining walls, bridge, &c., in connection with the Central Depot, Dragon Junction, for the T.C. Mr. C. E. Rivers, Borough Engineer, Municipal Offices, Harrogate.

OCTOBER 9.—**Neath.**—BRIDGE.—Construction of a bridge over the River Neath and other works near Glyn Neath Station, for the Great Western Railway Co. Chief Engineer, Paddington Station, W.

OCTOBER 9.—**Toronto.**—Alternating current generator, for T.C. Department of Overseas Trade, 35, Old Queen-street, S.W.1.

OCTOBER 10.—**Ely.**—WATER WORKS.—(1) Supplying and installing three-throw ram pumps, capacity 9,000 galls. each per hour, and semi-Diesel crude oil engines; (1a) Sinking two 20 in. boreholes, 60 ft. deep; (2) Laying about 35 miles of 7 in., 3 in., and 2 in. mains; (3) Construction of two reinforced concrete water towers, capacity 100,000 galls. each; (4) Supplying approximately 2,000 tons of cast-iron pipes and specials; (5) Supplying cast-iron valves and fittings, for the R.D.C. Mr. F. W. Green, Clerk, Council Offices, 11, Lynn-road, Ely, Cambs. Deposit of £5 for 2 and 3.

OCTOBER 12.—**London.**—MATERIALS.—Supply of the South Indian Railway Company of (1) copper rods, (2) miscellaneous articles. Offices, 91, Petty France, Westminster, S.W.1. Charges, 5s. and 2s. 6d. respectively.

OCTOBER 15.—**Falmouth.**—ELECTRIC INSTALLATION.—For the installation of electric light at the Poor Law Institution of the B.G. Mr. E. P. Skinner, Clerk, Town Hall, Falmouth.

OCTOBER 15.—**Gravesend.**—AIR COMPRESSORS.—Supply and erection of two electrically-driven air compressors at sewage works, for the T.C. Mr. F. T. Grant, engineer, Woodville-terrace, Gravesend.

OCTOBER 15.—**Manchester.**—STEELWORK.—Supply and erection of steelwork required in the bridge carrying the new road from Moston-lane to Bower-lane over the Rochdale Canal, for the T.C. City Engineer, Town Hall, Manchester. Deposit £2 2s.

OCTOBER 15.—**Newcastle-on-Tyne.**—HEATING, &C.—For the remodelling of the heating and lighting installation at the City Hospital, Walker, for the T.C. Mr. Ernest Hatton, General Manager, Transport and Electricity Undertaking, Newcastle-on-Tyne.

OCTOBER 15.—**St. Pancras.**—BOILER.—For a Cornish boiler, for the B.C. Mr. C. H. F. Barrett, Town Clerk, Town Hall, Pancras-road, N.W. 1.

OCTOBER 15.—**Sunderland.**—ELECTRICAL INSTALLATION.—For installation of electric power and light at the Institution and Cottage Homes of the B.G. Mr. W. P. Brantingham, Clerk, Offices, 17, John-street, Sunderland. Deposit £1.

OCTOBER 22.—**London.**—TUNNEL.—Construction of a tunnel under the River Thames at Barking, for the County of London Electric Supply Co., Ltd. Sir Alexander Gibb & Partners, Queen Anne's Lodge S.W.1. Deposit £15 15s.

OCTOBER 24.—**Australia.**—BRIDGE.—Construction of bridge for Country Roads Board, Victoria. Agent-General for Victoria (Australia), Melbourne-place, Strand, W.C.2. Preliminary deposit £500.

OCTOBER 31.—**Australia.**—ELECTRIC CRANES.—Supply and erection at Port Adelaide of four 7-ton electric coal-handling cranes, for the South Australian Harbours Board. Agent-General for South Australia, Australia House, Strand, W.C.2.

NOVEMBER 1.—**Siam.**—BRIDGES.—Supply of superstructures of steel railway bridges to Siam State Railways. Messrs. C. P. Sandberg, 40, Grosvenor-gardens, S.W. 1. Charge 28s.

NOVEMBER 9.—**India.**—STEELWORK.—Supply of structural steelwork for wagon repair shop, Trichinopoly workshops scheme, for the South Indian Railway Co. Company's Offices, 91, Petty France, Westminster, S.W. 1. Charge £1.

NOVEMBER 30.—**Sydney.**—BRIDGE.—Construction of the superstructure and substructure of a cantilever bridge across Sydney Harbour; also an alternative tender for the construction of the superstructure and substructure of an arch bridge across Sydney Harbour. Agent-General for New South Wales, Australia House, Strand, W.C.

DECEMBER 3.—**Sydney.**—High tension switchgear, for Municipal Council. Department of Overseas Trade (Room 52), 35, Old Queen-street, S.W.1.

ROAD, SANITARY, AND WATER WORKS.

SEPTEMBER 29.—**Sankey.**—BRIDGE.—Reconstruction of Barnes Bridge, Sankey, for the Lancashire C.C. Offices of the County Surveyor and Bridge Master, County Offices, Preston.

OCTOBER 1.—**Beckenham.**—ROAD WIDENING.—For the widening of a portion of Bromley-road, for the U.D.C. Mr. John A. Angell, Surveyor, Council Offices, Beckenham. Deposit £2.

OCTOBER 1.—**Brierley Hill.**—PAVING.—For laying about 9,800 sup. yds. sett paving, together with reinforced concrete foundations, kerbing, &c., for the U.D.C. Mr. John Yorke, Surveyor, Town Hall, Brierley Hill. Deposit £5 5s.

OCTOBER 1.—**Edinburgh.**—ROADS.—Supplying and laying of Whinstone Causeway setts to front of the two gateways at the Central Kitchen and Store Block of Bangor Mental Hospital. Mr. James D. Gibson, Surveyor, 60, Frederick-street, Edinburgh.

OCTOBER 1.—**Friern Barnet.**—ROADS.—For resurfacing Oakleigh-road, for the U.D.C. Mr. E. P. Kindell, Surveyor, Council Offices, New Southgate, N.

OCTOBER 1.—**Hull.**—TRAMWAY TRACK.—For the renewal of tramway track in Witham and Beverley-road, a total length of about 5 miles single track, for the T.C. Mr. F. W. Bricknell, City Engineer, Guildhall, Hull.

OCTOBER 1.—**Hurst.**—PAVING.—For about 2,000 superficial yards of paving, for the U.D.C. Mr. Samuel Shirt, Council Offices, Lower King-street, Hurst.

OCTOBER 1.—**Southwick.**—SEWER.—Laying some 130 yards of 8 in. stoneware pipe sewer, for the U.D.C. Mr. George W. Warr, Surveyor, Town Hall, Southwick.

OCTOBER 1.—**Stockton-on-Tees.**—SEWERAGE WORKS.—Construction of a pumping station, tanks, pipe sewer, cast-iron rising main, &c., for the T.C. Mr. J. P. Wakeford, Borough Engineer, Stockton-on-Tees. Deposit £1 1s.

OCTOBER 1.—**Ventnor.**—SEWER, &C.—For (1) extension of main sewer, (2) laying down four hard tennis courts, (3) redecking pier promenade, for the U.D.C. Mr. D. V. Howard, Surveyor, Town Hall, Ventnor, I.W.

OCTOBER 1.—**Warrington.**—ROADS.—Laying of about 1,800 square yards of bituminous work on Park-avenue housing site, for the T.C. Mr. A. M. Ker, Borough Engineer, Warrington.

OCTOBER 2.—**Littleborough.**—ROADS.—For 9,750 super yds. of granite sett paving on concrete and other works (setts provided by the Council) in Church-street, Featherstall-road and New-road, for the U.D.C. Surveyor, Council Offices, Littleborough.

OCTOBER 2.—**Margate.**—ROADS.—For carrying out private street works at (a) Northdown Way Estate and (b) Wellclose-square, for the T.C. Borough Surveyor, 13, Grosvenor-place, Margate.

OCTOBER 2.—**Portslade-by-Sea.**—PAVING, &C.—For supply of road materials and for paving works, for the U.D.C. Mr. A. Taylor Allen, Surveyor, Council Offices, Portslade-by-Sea, Sussex.

OCTOBER 3.—**Cardiff.**—ROADS.—(a) Widening Rectory-road, Leckwith; (b) Widening Caermain-road, Llandcarfan, for the R.D.C. Mr. W. Farrow, Surveyor, Park House, 20, Park-place, Cardiff.

OCTOBER 3.—**Stockton-on-Tees.**—SANITARY.—Conversion of privies into w.c.'s in various streets, for the T.C. Borough Engineer, Victoria Buildings Stockton.

OCTOBER 3.—**Wembley.**—ROADS.—For surfacing of carriageway of Ealing-road with natural rock asphalte, for the U.D.C. Mr. C. R. W. Chapman, surveyor, Wembley. Deposit £1 1s.

OCTOBER 4.—**Cudworth.**—SANITARY.—Conversion of privies into w.c.'s at Cudworth. Mr. J. R. Shepherd, Surveyor, Council Offices, Cudworth.

OCTOBER 4.—**Fulham.**—ROADS.—For remaking the roadway at the Workhouse, Fulham Palace-road, for the B.G. Mr. E. J. Mott, Clerk, 129, Fulham Palace-road, W. 6.

OCTOBER 4.—**Hove.**—ROADS.—Making-up Avondale-road, for the T.C. Mr. H. H. Scott, Borough Surveyor, Town Hall, Hove.

OCTOBER 4.—**Southend-on-Sea.**—ROADS.—For making up parts of Branksome, Christchurch, Theobalds and Station-roads and Macdonald-avenue, for the T.C. Mr. R. H. Dyer, Borough Engineer, Southend-on-Sea. Deposit £2 for each road.

OCTOBER 4.—**Wandsworth.**—ROADS.—For paving Faygate-road, Fontaine-road, Ockley-road, Strathbrook-road, Woodbourne-avenue, Cricklade-avenue (part), and Downton-avenue (part), Streatham; Ellerton-road (part), Headington-road, Lidiard-road, and Leckford-road, Wandsworth; and Victoria-road, Southfield, for the B.C. Mr. E. J. Elford, Borough Engineer, 215, Balham High-road, S.W. 17. Deposit £1 1s.

OCTOBER 6.—**Birmingham.**—ROAD.—Construction of new road, 10 miles in length, between Birmingham and Wolverhampton, for the Joint Committee. Mr. H. H. Humphries, City Surveyor, Birmingham. Deposit £10 10s.

OCTOBER 6.—**Chester.**—ROADS.—For road and sewage works on Heath-lane Housing Site, for the T.C. Mr. Charles Greenwood, City Engineer, Town Hall, Chester. Deposit £1 1s.

OCTOBER 6.—**Ilford.**—ROADS.—Extension of Perryman's Farm-road to Horns-road, Barkingside, for the U.D.C. Surveyor, Town Hall, Ilford. Deposit £2 2s.

OCTOBER 8.—**Morley.**—ROADS.—For the paving of a portion of Churwell-hill with Elland Edge setts, for the T.C. Mr. F. Turner, Borough Engineer, Town Hall, Morley. Deposit 10s.

OCTOBER 10.—**Ely.**—WATERWORKS.—Supplying and installing three-throw ram pumps, semi-Diesel crude oil engines, sinking boreholes, laying and jointing about 35 miles of mains, construction of two reinforced concrete water towers, supplying 2,000 tons of cast-iron pipes and specials, and supplying cast-iron valves and fittings, for the U.D.C. Clerk, R.D.C. Offices, 11, Lynn-road, Ely, Cambs. Deposit £5.

OCTOBER 11.—**Kingston-on-Thames.**—ROADS.—For making up portion of Oil Mill-lane, for the B.C. Borough Surveyor, Kingston-on-Thames. Deposit £1 1s.

Competitions.

(*See Competition News, page* 476.)

Auction Sales, Tenders, etc.

SEPTEMBER 29.—**Carnarvon.**—Messrs. Wm. Dew & Son and R. Arthur Jones will sell in voluntary liquidation by order of the liquidators, at the Royal Hotel, Carnarvon, valuable slate and granite quarries at Waunfawr, near Carnarvon, all those valuable slate and granite quarries and three farms, together with grazing rights on Douen Las sheep walk. Auctioneers, Bangor, Conway, and Colwyn Bay.

OCTOBER 2.—**Dalston, London, N.**—Messrs. Joseph Hibbard & Sons will sell by order of the High Court of Justice, Chancery Division (Mr. Justice Russell), *re* W. Warden, Ltd., Temple *v.* Warden, at the Dalston Saw Mills, No. 26, Regent's-row, Queen's-road, Dalston, saw mill machinery and plant. Auctioneers, 15, Newington-green, Islington, N.16.

OCTOBER 2.—**Dalston, London, N.**—Messrs. Joseph Hibbard & Sons will sell, previously to the sale of plant, by order of the High Court of Justice, Chancery Division (Mr. Justice Russell), *re* W. Warden, Ltd., Temple *v.* Warden, at the most moderate reserve upon the premises, No. 26, Regent's-row, Dalston, brick-built conveniently arranged leasehold sawmill, timber yard and residence, known as Dalston Saw Mills, No. 26, Regent's-row, and 60, Pownall-road (situated by the side of the Regent's Canal, together with nine-roomed residence vacant possession (except of the house) will be given upon completion. Auctioneers, 15, Newington-green, Islington, London, N.16.

OCTOBER 4 & 5.—**London, E.C. 3.**—Messrs. C. C. & T. Moore will sell by order of executors of the late J. J. Hickmott (the elder), deceased, forty acres of land with frontage at Longford, Kent, 16¼ acres of land with frontages to London-road and Swanley-road. Auctioneers, 7, Leadenhall-street, E.C. 3.

✱OCTOBER 9.—**London, W.**—Messrs. J. T. Skelding & Co. will sell, at 22, Gray's Buildings, Duke-street, W., without reserve, by order of Mr. C. W. French, in consequence of expiration of lease and his relinquishing the business, Manchester-square, W., the stock and plant of a builder and decorator. Auctioneers, 48, Gresham-street, Guildhall, E.C.2.

OCTOBER 9.—**Middlesex.**—Messrs. Allsop & Co. will sell by direction of the George Cohen & Armstrong Disposal Corporation at R.A.F. Depot, West Drayton, Middlesex (G.W.R.), timber, glass and other building materials. Auctioneers, 141, Park-road, N.W. 8, and 15, Soho-square, W. 1.

✱OCTOBER 9 AND 10.—**Poole, Dorset.**—Messrs. Curtis & Son have been instructed by the Senior Official Receiver in Companies Liquidation, to sell, without reserve, at the Company's Depot, Stanley Green, Poole, Dorset, in the matter of the Waller Housing Corporation (in liquidation), wooden buildings, electric generating station, machinery, tools and plant of the concrete housing works, power and lighting plant, machinery and tools, cranes, permanent-way rails. Auctioneers, The Poole Auction Rooms, 42, Station-road, Poole, Dorset.

OCTOBER 23.—**London, S.W.**—Messrs. Bradshaw, Brown & Co. have received instructions from Messrs. W. G. Tarrant, Ltd., to sell, owing to the completion of contracts, Wandle Valley Relief Sewer, L.C.C., contractors' plant and material, laying at the following depots, viz., 536, Garrett-lane, Tooting, S.W., close to Earlsfield Station, and Church-lane, Tooting, S.W. (near by). Auctioneers, Billiter-square Buildings, London, E.C. 3.

✱OCTOBER 23 AND 24.—**London, E.C.**—Messrs. Fuller, Horsey, Sons & Cassell will sell, by order of the Port of London Authority, clearance sale of contractors' and engineers' plant, machine tools and stores, laying at various docks and wharves, will be sold in lots at the Commercial Sale Rooms, Mincing-lane, E.C. Auctioneers, 11, Billiter-square, E.C.3.

✱OCTOBER 24.—**London, N.W.1.**—Messrs. Parsons, Clark & Bodin will sell at a low reserve, on the premises, 9A, Diana-place, Euston-road, the beneficial lease of extensive workshops, stores and yard, known as 9A, Diana-place, with immediate possession. Auctioneers, 24, Hanover-square, London, W.

OCTOBER 25.—**Essex.**—Messrs. Knight, Frank & Rutley will offer for sale as a going concern the valuable freehold Portland cement, lime and whiting Works, Saffron Walden, Essex. Auctioneers, 20, Hanover-square, W.1.

OCTOBER 30.—**London, W.1.**—Messrs. Henry Holmes & Co. will sell at Mortimer Hall, 93, Mortimer-street, Oxford Circus, W. 1, important building site, 14, 16 and 18, Great Titchfield-street, and 9A, Margaret-street, Oxford Circus, W. Auctioneers, 82, Mortimer-street, W. 1.

✱Messrs. Veryard & Yates will sell without reserve, to clear site at "The Old Manor House," Bushey, building material, timber and fittings, arising from demolition of above. Auctioneers, 365, Norwood-road, S.E.27.

Public Appointments.

SEPTEMBER 29.—**Carmarthen.**—Competent Assistant (London trained preferred) for a period of six to twelve months, for school designs and details, by the Carmarthenshire C.C. Mr. W. Vincent Morgan, A.R.I.B.A., County Architect, Carmarthen.

SEPTEMBER 29. — **Newcastle-upon-Tyne.** — Senior Architectural Assistant required in the office of the Housing Architect by the City and County Council of Newcastle-upon-Tyne. Mr. A. M. Oliver, Town Clerk, Newcastle-upon-Tyne.

OCTOBER 6.—**London, S.W. 1.**—Assistant Civil Engineers required in Civil Engineer-in-Chief's Department, Admiralty, at H.M. Naval Establishments at Home and Abroad; also Temporary Engineering Assistants required in London Office of Civil Engineer-in-Chief's Department, Admiralty, and at Outports. Civil Engineer-in-Chief's Department, Admiralty, London, S.W. 1, on recognised form.

✱NO DATE.—**Zanzibar.**—Clerk of Works required by the Government of Zanzibar, for the Public Works Department for a tour of from 20 to 30 months continuous residential service with possible extension. Crown Agents for the Colonies, 4, Millbank, Westminster, S.W.1., quoting M/12268.

Business Openings at Belgrade.

Captain E. Murray Harvey, O.B.E., Commercial Secretary at Belgrade, will be in attendance at the Department of Overseas Trade on October 1, 2 and 3, for the purpose of interviewing manufacturers and merchants interested in trade with the Serb-Croat-Slovene Kingdom. Such interviews will only be given by appointment, and applications should be addressed to the Comptroller-General, Department of Overseas Trade, 35, Old Queen-street, London, S.W.1. In all cases the reference 4937-T.G. should be quoted.

Spitalfields Market.

An improvements scheme at Spitalfields Market shortly to be put in hand is estimated to cost £2,000,000. The extension of the market to the west will give an additional area of about 87,500 ft. super., making the total area of the market about 213,000 ft. super., or over four acres. The improvement scheme provides that Lamb-street, on the north side, and Brushfield-street, on the south, shall both be widened to 60 ft., and the road suggested for the western side of the new market is to be 80 ft. in width. Altogether there will be an area of some 50,500 ft. super. available for use by market carts in delivering and taking away goods. To meet the requirements for re-housing people displaced by the new scheme the Corporation have acquired sites in Stepney for 600 people, and one block of buildings that has just been completed is in High-street, Shadwell. Inasmuch as the greater part of the buildings to be cleared away may be described as slum property, the scheme will not only be of great advantage to a market the business of which is growing rapidly, but to the neighbourhood and its residents generally. Traffic will also be largely facilitated.

Hull Housing Schemes.

At their last meeting the Hull Corporation Housing and Town Planning Committee adopted the plan of a proposed new street from near the Hull Paragon Station to the corner of Beverley-road and Spring Bank, in Prospect-street. The City Council have approved the principle, and the proposal will be included in the next Corporation Parliamentary Bill.

The City Architect was instructed to prepare plans for 600 parlour houses on the three Corporation Housing sites, the City Engineer to advertise for contracts for the necessary street work. It was agreed that individual houses erected privately should rank for subsidy if they occupied an eighteenth of an acre of land.

The Hull Building Trades Employers' Association wrote urging that the subsidies of £100 and £85, fixed by the Corporation, would not encourage a great volume of house building. If the investor in property was to be attracted they considered that the full provisions of the Act must be applied. Accordingly they asked the Committee to consider further the question of financing builders in connection with the Act.

It was resolved that, in connection with the buildings erected by general builders under the Small Dwellings Acquisition Act the Corporation were prepared to make advances on mortgage to the extent of 80 per cent. of the cost, the same to be repayable in 20 years.

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PROPOSED NEW BUILDINGS & OTHER WORKS.*

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C for Rural District Council: E.C. for Education Committee; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

ABERAYRON.—Plan passed by T.C.: District war memorial hall, for the Fund Trustees.——A drainage scheme is to be considered for the district by the Council, and the Engineer, Mr. Mossflowers, is preparing report.

ABERDEEN.—Plans passed: House, Tanfield-walk, for Mr. W. T. Shirras, per Mr. George Watt; war memorial court, Cowdray Hall, and art gallery extension, for the Aberdeen T.C., per Messrs. A. Marshall Mackenzie & Son.

ABERSYCHAN.—Engineering firms have been requested by U.D.C. to frame a bridge scheme for the Cwmavon-road. The Council has nearly completed arrangements preparatory to putting in hand electricity scheme, mains laying, &c.

BEDFORD.—Plans passed by T.C.: Mr. H. Parr, for Messrs. Newland & Nash, alterations, Midland Railway Hotel Midland-road; Mr. H. Parr, for Messrs. Newland & Nash, alterations, "The Bear Inn," High-street; Bedford Gas Co., alterations, Ford End-road; Mr. E. H. C. Inskip, for W. Whitlock & Co., alterations, 117, High-street; Mr. K. Gammell, for Mr. J. V. Cooke, conversion into flats, 23, Pemberley-avenue; Mr. A. Smith, for Mrs. F. T. Saintsbury, house, St. Albans-road; Mr. E. H. C. Inskip, for Bedford Steam Laundry, additions, Goldington-road; Messrs. Usher & Anthony, for Charles Wells, Ltd., garage, "Gordon Arms," Castle-road; Mr. E. H. C. Inskip, for Mr. A. Garrity, conversion into flats, 10, Queen-street; Mr. W. B. Stonebridge, for Messrs. Dudeney & Johnston, alterations, Cauldwell-street; Mr. J. B. Thomas, for Mrs. E. E. Field, bungalow, Park-road North; Mr. A. W. G. Prosser, for The Muntona Co., alterations, Hassett-street.

BEDWAS.—The Bedwas and Machen Council and the Gellygaer U.D.C. are to join with Glamorgan and Monmouth County Councils in erecting a viaduct from Hengoed to Maesycwmmer.

BELFAST.—Plans approved: Stores in Millfield, for Mr. James Kelly: architect, Mr. W. C. Porte; reconstruction of premises after fire in Royal-avenue, for Messrs. Steele & Milliken: architect, Mr. Samuel Stevenson; villa in Myrtlefield Park, for Mr. A. McDowell: architect, Mr. T. R. Eagar; shop and house in Short Strand, for Mr. John Cosgrave: architect, Mr. S. J. McAvoy; reconstruction of premises in Castlereagh-street, for Mr. W. J. McEntagart: architects, Messrs. E. & J. Byrne; dance hall in Agincourt-avenue, for the representatives of the late Joseph McKibbin: architect, Mr. Gordon O'Neill, builders, Messrs. Cairns Bros.; offices and stores on Grosvenor-road, for W. & R. Jacob: architects, Messrs. Munce & Kennedy; two villas in Castle-avenue, for Mr. Wm. Curran: architects, Messrs. Blackwood & Jury; house and shop and house in Cupar-street and Wilton-street, for Messrs. McArdle, Moore & Co., architect, Mr. Charles Macalister; dining-room on Sydenham-road, for the British Petroleum Co.'s depot; additions to two villas in Myrtlefield Park, for Mr. A. McDowell: architect, Mr. T. R. Eagar; villa in Fortwilliam-drive, for Mr. Louis Morton: architect, Messrs. Taggart & Silk; extensions to Royal Victoria Hospital on the Grosvenor and Falls roads, for the Board of Management: architects, Messrs. Young & Mackenzie: builders, Messrs. McLoughlin & Harvey; two villas in Cyprus Park, for Mr. W. Rodgers. architect, Mr. James Scott; addition to shop and house on Oldpark-road, for Mr. Joseph Kennedy; offices, stables and sheds in Beechmount-avenue, for Mr. T. B. Kennedy: architects, Messrs. F. & J. McArdle.

BIGGLESWADE.—Plans passed by R.D.C.: Pair of cottages at House-lane, Arlesey, for Mr. F. Phillips.

BISHOP'S STORTFORD.—Plans passed: Bungalow in Maze Green-road, for Mr. E. Markwell.

BLACKWELL.—At a recent meeting of the R.D.C. it was decided to proceed with a scheme of sewerage and sewage disposal for their Langwith area. Messrs. W. H. Radford & Son, civil engineers, of Nottingham, have been instructed to prepare plans for submission to the Ministry of Health.

BLYTH.—Plans approved by T.C. include a new recreation ground at Plessey-road, at an estimated cost of £2,500. This will be carried out as relief work by the unemployed.

BRADFORD.—The Y.W.C.A. have acquired Enoch Shaw Buildings for their new hostel, at a cost of £16,500. The internal alterations, estimated to bring the total cost to £23,000, is to be carried out immediately.

BRAMPTON.—Plan for bungalow at Moss Pladdow, passed by R.D.C.

BRIDGEND.—At a meeting of the Bridgend Council this week a letter was read from the Surveyor to the Great Western Railway Co. asking for permission to make a statement on housing at Bridgend. A member explained that the railwaymen were thinking of forming a society under the company's housing scheme and taking advantage of the Government's financial assistance. The G.W.R. scheme was much more favourable than that of the Government, and if the railwaymen could form a society, it would materially assist the Council. It was decided to give the opportunity asked for.

BRIDLINGTON.—Plans passed by T.C.: Mr. M. B. Parkin, bungalow, Gilbert-street, for Mr. and Mrs. E. B. Baron; Mr. F. Vaux, new shop, &c., Quay-road, for Mr. Higginson; Mr. F. W. Martindale, garage and store, Ashbourne-avenue, for Mr. F. W. Martindale; Mr. S. Dyer, house, Easton-road, for Mrs. Witty; Mr. J. R. Earnshaw, house, St. James's-road, for Mr. J. W. Emmerson; Mr. J. R. Earnshaw, house, Mayfield-road, for Mr. R. Plowes; Mr. J. R. Earnshaw, house, Mayfield-road, for Mr. G. Turner; Mr. J. R. Earnshaw, two houses, Lamplugh-road, for Mr. J. Leason; Mr. J. R. Earnshaw, house, Kingsgate, for Mr. H. W. Hutton; Mr. C. L. Waite, house, Flamborough-road, for Mr. W. Witting; Mr. J. H. Hudson, house, Marine-drive, for Mr. S. L. Haldane.

BRIDPORT.—The T.C. has decided to erect 30 more houses.

BURRY PORT.—The Council is to spend £750 on laying water mains, &c.

BURTON-ON-TRENT.—The T.C. has decided to expend £6,000 on extending the Museum.

CARMARTHENSHIRE.—The County Education Committee has decided upon new works estimated to cost £135,000—chiefly provision of schools—to be carried out within a fixed time-limit.——At the Carmarthen Town Secondary Schools a fund of £750 has been raised to provide swimming baths

CHESTER.—Plans passed by T.C.: Bungalow, Lache-lane, for Mr. H. Sequin; house, Cliveden-road, for Mr. Geo. Barlow; two semi-detached houses, Liverpool-road, for Mr. E. Cooper; house, Curzon Park, for Mrs. W. Welsby.

COLWYN BAY.—With the object of erecting between 200 and 300 working men's houses, the U.D.C. has purchased Tanlan, Old Colwyn, which comprises a farmhouse and 15 acres of land, for £6,500. It is the Council's intention also to build a further batch of 30 houses at Rho-on-Sea. The Council has purchased Tanycold Estate for £5,500. for the purpose of widening Beach-road, in Old Colwyn, a thoroughfare connecting the Abergele main road with the East Promenade. It is proposed to lay out the slopes on either side as public gardens, with paths and grottoes.

CROYDON.—Plans passed by B.C.: R. J. Sadleir, two houses, Blake-road; J. Midmer, five houses, Pollards Wood-road; W. G. Ingram, six houses, Green-lane; Research Association of British Rubber & Tyre Manufacturers, solvent store, 105–107, Lansdowne-road; Berney & Son, parish memorial hall, Cross-road; H. Sawyer, eight houses, Morland-road; S. G. Gee, house, Croham Manor-road; G. & A. Parris, house, Haling Park-road; S. M. Dempster, house, Monks Orchard Estate; C. Lewin, bungalow, Addiscombe-road; S. H. Laver, three houses, Pollards Hill South; C. H. Ridge new bakehouse, 49, Church-street; W. G. Ingram, seven bungalows, Downsview-road; H. N. Dering, nine shops and houses, Lower Addiscombe-road; R. B. Manser, house, 62, Compton-road: L. Horrocks, bungalow, Monks Orchard Estate; C. Bankes, shop and three garages, Handcroft and Sumner roads; R. Weller, two houses and garages, Alton-road; A. Andrews, five houses and garage, Tunstall-road; G. Poulton & Son, house, Addiscombe-road, and 16 houses, Shirley Church-road; Paish, Tyler & Crump, 14 houses, Selwood-road; H. E. Davey, bungalow, Whitehorse-lane; J. W. Dawson, house, Crown-lane; W. M. Marcus, garage with rooms over, Norbury-avenue; J. B. Hemmings, 25 houses, Tunstall-road; Morgan, Baines & Clark, 14 houses, Mount Park-avenue; E. Evans & Sons, house, Elmwood-road; Young & Macintosh, house, Briar-avenue.

DORCHESTER.—The Justices have passed plans by Mr. C. W. Pike, architect, for alterations at the Junction Hotel, for the Dorchester Brewery Co.

DRIGHLINGTON.—Plans passed: Alterations to the U.M.C., for the Trustees; house in King-street, for Mr. Calvert Render; and a new meat factory, for the Co-operative Wholesale Society, Ltd.

DUBLIN.—Plans passed: Eight houses, Hollybank-road, for Mr. T. J. Boyd; chapel to St. Teresa's Church, Clarendon-street; cottage in Clinch's-court, for Mrs. Carolan; front and flank wall at 11, Dolphin's Barn-street, for Mrs. Togood; top story and roof to 52, Dorset-street, Upper, for Mr. Cronin.

EAST DEAN.—The R.D.C. has approved a scheme for the construction of a new road 600 yards long, constructed of ferro-concrete and spanning the Severn at Newnham, at an estimated cost of £150,000. The scheme has been submitted to the M.T. for approval.

GILDERSOME.—Plans passed by U.D.C.:—Sanitary conveniences in King-street, for Messrs. Melton & Newsome; conversions at Moorside, for Mr. Grayshon; alterations at the United Methodist Church; conversions at Adwalton, for Mr. Buttery.

GREAT YARMOUTH.—Plans passed by T.C.: Addition to factory, Middlegate-street, Messrs. W. Docwra & Co.; audition rooms, King-street, Messrs. Wolsey & Wolsey; alterations to 119, Beccles-road, Gorleston, Mr. B. H. Mutton; bungalow, Poplar Grove-road, Gorleston, Messrs. Crow & Palmer; arcade of shops, Row 74 to Regent-street, for the Great Yarmouth and Gorleston Investment and Building Co., Ltd.; eight houses, Mill-road, Cobholm, for Mr. F. Brett.

GREENOCK.—At a meeting of the Housing Committee Lord Pirrie, managing director of Messrs. Harland & Wolff, and Mr. J. W. Kempster, local manager, were present. The subject of grants to private builders for the erection of houses was discussed with the object of ascertaining if Messrs. Harland & Wolff would be prepared to acquire a number of houses under that scheme for their workmen. Lord Pirrie indicated that his firm would give the matter their favourable consideration.

HARPENDEN.—Plans passed by U.D.C.: House, Sauncey-avenue, for Mr. W. H. Lambert; two houses at Ellis wick-road, for Mr. J. M. Wadsworth; house at Ox-lane, for Mr. Lovegrove.

HARTLEPOOL.—A scheme to provide new accommodation for the nurses at the Workhouse has been approved by the B.G. The cost will be about £4,700.——The B.G. has decided to carry out extensions to the Infirmary at an estimated cost of £4,700.

HAVERFORDWEST.—Plan passed by R.D.C.: Farmhouse at Llaneast, for Sir Evan Jones.

HEALEY.—The Congregational Church authorities have acquired a site at the junction of Deighton-lane and West Park-road for a new church. The work is to be put in hand at once.

HEMSWORTH.—The Ministry of Health has approved payment of the Government subsidy in respect of 78 of the 90 houses being built by the South Kirkby, Featherstone and Hemsworth Collieries Ltd., at Fitzwilliam. Sanction has also been obtained to the payment of the Government subsidy on the 250 houses estimated to be erected within the next nine months in the urban district.

HESTON AND ISLEWORTH.—Plans passed by U.D.C.: Messrs. Roper, Son & Chapman, two bungalows, Lampton-road; Mr. A. C. Stephens, bungalow, Hanworth-road; Messrs. Danels & Son, Ltd., bungalow, Spring Grove-road, Lampton; Mr. L. Fowler, converting "Eastholme" into two dwelling houses, Stalnes-road; Mr. J. P. Blake, house, Hibernia-road; Mr. A. C. Hodges, house, Jersey-road; Mr. Hugh Byron, new walls and milk store, 481, London-road; Mr. A. J. Weekley, cooling room, 165, Hanworth-road.

HUDDERSFIELD.—The Dalton Chemical Works Co., Ltd., has decided to erect new benzol storage tanks at their works, and tenders for this work are to be invited. Abbey & Hanson, architects, Cloth Hall-street, Huddersfield.

ILFORD.—The London City Corporation has agreed to sell 168¼ acres of the surplus land at Ilford, which was bought by the Corporation in connection with the Addison housing scheme, in order that the site might be developed by private enterprise.

JARROW.—To provide work for the unemployed during the winter months the T.C. is seeking loans for the following: Albert-road relief sewer (approved by Ministry of Health) at a cost of £6,430; street paving, £9,137 4s. 6d.; improvement of Western-road, £4,800; and widening Bede Burn-road, at Belsfield, £1,620. The Council have also adopted a scheme for erecting an additional 100 houses, and are calling a conference of builders, building societies, and others, with a view to co-operation in the building of more working-class houses.

LEEDS.—The famous hostel known as the "Chained Bull" at Moortown is to be reconstructed for Messrs. Ind Coope, Ltd., Burton Brewery. Messrs. A. & F. Mosleys, Wormald-row, Leeds, are the architects.

LLANDILO.—The Ministry of Health is to hold a public inquiry into the proposed Joint Council's sewerage scheme.

LLANELLY.—Plans and estimates for a new station are being considered by G.W.R. Co. It is proposed to make a four platform station. 1,000 ft. long, and wide overhead connecting bridge. Two-story structure will be erected as offices and waiting-room. In addition, an extension of Llanelly engine-sheds is to be made.——Road estimates adopted by B.C. Highways Committee for half year commencing October 1 amount to £15,000.

LONDON (BERMONDSEY).—Plans passed by B.C.: Lock-up shop, 247, Lower-road, for the L.C.C.; sawmill, &c., Odessa-street, for G. Tate & Sons; factory, 44, Grange-walk, for H. Kent.

LONDON (LEWISHAM).—Plans passed by B.C.: W. H. Stevens, two houses, Marvels-lane: Eaglen Bros., four houses, Burnt Ash-hill; Eaglen Bros., four houses, Heather-road; Frank J. Langston, lock-up shop, Manor-lane; C. Cutler & Sons, house, Chinbrook-road: J. G. Witcombe, house, Winn-road: Rees & Archer-Betham, house, Brockley Park; Scales & Jones, 10 houses, Coniston-road.

LONDON (WANDSWORTH).—Plans passed by B.C.: W. F. Goodchild, house, 24, Wandle-road, Springfield; J. S. Quilter & Son, eight houses, Valley-road, Streatham; F. H. S. Keens, 33 houses in Granville-road; J. Willmott & Sons, Ltd., shops and billiard hall, 103, 105, Upper Tooting-road, Balham; W. Davies, garage and four houses in Maplestead-road, Streatham; E. Eggleton & Son, house, Orlando-road, Clapham North; G. P. & H. Barnes, two houses, Abbotsleigh-road, Streatham, and parsonage, Garratt-lane, Tooting; C. Newman, shop, 118, Mitcham-road, Tooting; F. & R. A. Harrop, three houses and garage, Moyeer-road, Streatham; Chapple & Fulford, two houses, Woodfield-grove, Streatham; Phœnix Construction Co., two houses, Mount Nod-road, Streatham; G. Pratt, addition to Wimpole Laundry, Standen-road, Southfield; A. Monk, showrooms, 126 and 128, High-street, Wandsworth; E. M. Patterson, conversion into flats of Oakley House, West Hill, Southfield; S. Boothman, nine houses, Crowborough-road, Streatham; G. W. Beattie, four shops, Upper Richmond-road, Putney; W. F. Goodchild, two houses, Thrale-road, Streatham; J. Garrett & Son, vicarage and out-house, St. Paul's Church, Rectory-grove, Clapham North; W. H. Taylor, 10 houses, Valley-road, Streatham.

LOWESTOFT.—Plan passed by T.C.: Mr. A. H. Bond, three bungalows, Sandy-lane, Oulton Broad.

MABLETHORPE.—The U.D.C. has decided to put down a test bore at Maltby-le-Marsh, some three and a-half miles from the centre of the town. A recent survey leads to the assumption of an adequate water supply being tapped here.

MANSFIELD.—Plans passed by T.C.: Wm. Slack, conversion of house into house and shop, Rosemary-street; A. Meakin, house, Clifton-grove; D. Bloor, house, Nottingham-road; Thos. Smith, eight houses, Selwyn-road and Rifle-parade; George White, bungalow, Little Barn-lane; F. Wain, house, Southwell-road; A. Mather, stable and cartshed, Somersall-street; Miss Wakefield, house and shop, Chesterfield-road; The Croft Mill Twist Co., new street to be called Sandhurst-avenue, Bottle-lane; The Croft Mill Twist Co., two houses, Sandhurst-avenue; H. Baggaley, two houses, Bottle-lane; C. H. Walker, house and garage, Atkin-lane; Committee of the Spiritualists'

* See also our List of Contracts, Competitions, etc.

Church, church and out-offices, Dallas-street; J. W. Naylor, bungalow, Clifton-grove; — Jackson, house, Southwell-road; C. Stafford, house, Southwell-road; J. Templeman, garage, Midworth-street; Jno. Parsons, house, George-street; J. H. Pembleton, bungalow, Nottin ham-road; Blythe & Son, bungalow, Eakring-road; George Fowler, house, Oaktree-lane; Dobb & Foster, bungalow, Grange-avenue; Dobb & Foster, bungalow, Meadow-avenue; H. Fell, house and shop, Victoria-street; Duke of Portland, additions to Blythe's Barn, Southwell-road; Mansfield Leather Co., three lock-up shops, Newgate-lane; J. H. & T. Cawood, two houses, Southwell-road.

MILFORD.—It is reported that the G.W.R. Co., to complete the acquisition of Welsh docks, is to acquire whole of Milford docks and make large extensions. The doubling of the railway lines to the docks is also reported to be in view.

PONTYPOOL.—The R.D.C. has accepted a grant offer from Ministry of Transport to repair Penycaemawr-road at estimated cost £1,54 . —The Surveyor is to submit scheme for reconstruction of Lower Pontnewydd Bridge.

PORT SUNLIGHT.—Viscount Leverhulme has announced that freehold building plots will be given free to their workpeople at Lever & Co.'s Works for single or semi-detached houses, built to the owner's designs and approved by the company's architect. Co-partners would have preference.

RHYMNEY VALLEY.—The Rhymney Valley School Managers (Monmouthshire Section) have decided to apply for additional school accommodation in the district of Cefn Forest, where great developments are anticipated. The Board of Education sent formal notification of their proposal to provide new public elementary central schools at Rhymney and Pontllanfraith.

ROCHESTER.—Plans passed by T.C.: Bungalow and house, Jersey-road, Strood, for Mr. F. Holmes; bungalow, Dark-lane, for Mr. C. Miller; house, Priestfield-avenue, for Paymaster-Commander A. W. B. Messinger, R.N.; house, Southfields, for Mr. W. Fraser; two bungalows, Wilson-avenue, for Messrs. W. E. R. Randall & Sons; bungalow, Wilson-avenue, for Mr. Laidlaw; bungalow, Wilson-avenue, for Mr. D. C. B. Cox; alteration of cinema, Strood-hill, for the Strood Motor & Engineering Co., Ltd.; and two villas at Frindsbury-hill, for Mr. T. Fowle.

ROTHERHAM.—Plans passed by R.D.C.: Miners' Institute at Dalton; bungalow at Laughton Common, for Mr. A. Elvidge; two houses on Bawtry-road, Brinsworth, for Mr. J. W. Gray; house in Moor-lane, Ravenfield, for Mr. H. Senior; two houses in Nether Moor-lane, Wickersley, for Messrs. T. W. & T. W. Outram; bungalow for Mr. P. Clarke in Northfield-lane, Wickersley.

SHEFFIELD.—It is proposed to erect a new Primitive Methodist Church at Carter Knowle-road, in the Abbeydale district. Building operations are to be commenced shortly.

STOCKTON.—Plans have been approved by the R.D.C. for a bungalow in Darlington-lane, near Hardwick Farm, for Mr. T. Morris, Middlesbrough; and for a house at Redmarshall Mains Farm, Redmarshall, for Mr. W. Hall.

STREET.—The U.D.C. has instructed the Surveyor to prepare plans for two semi-detached houses and a block of four houses.

SWANSEA.—Plans passed by T.C.: Church Green-hill-street, for the Rev. W. J. Bromham; two houses, Middle-road, for Mr. E. Jeffreys; house, Maple-grove, for Mr. G. J. Anthony; house, Middle-road, for Mrs. Renorden; bungalow, Trewyddfa-road, for Mr. D. Davies; house, Westfa-road, for Mr. J. Pye; house, Smith's-road, Birchgrove, for Mr. Geo. Warren; 24 houses, New-road, off Derwen Fawr-road, for Messrs. T. & G. Spragg; house, West Cross-lane, for Mr. A. V. Hopkins; house and shop, Carnglas-road, for Mr. C. Morris; house and shop, Clydach-road, Ynistawe, for Mr. D. Davies; house, New-road, Westcross, for Mr. T. Bevan; house, Pont Lassau, for Mr. T. Hughes; house, Llangyfelach-road, Morriston, for Mr. J. G. Gardiner; house, Llangyfelach-road, Morriston, for Mr. B. Jones; bungalow, Hendrefollan-road, for Mr. Jas. Lloyd; store-room, Haslemere-road, for Mr. F. W. Allen; house, Percy-street, for Mr. D. Hopkins; house, West Cross-lane, for Mr. H. R. Brown; house Pinewood-road, for Mr. R. C. Norman; two houses, Beechwood-road, for Messrs. Davies & Kay; house, Langland Cliffs, for Mr. E. T. Rich; two houses, Queen's-road, Sketty, for Mr. J. Priestly; two houses, Hendrefollan-road, for Messrs. D. W. & G. H. Barnes; house, West Cross-lane, for Mr. A. V. Hopkins; seven houses, Maple-crescent, for Mr. John Pye; layout and sewerage, Glanmor Estate, for Messrs. John Pye & Co.; two houses and shops, Woodfield-street, Morriston, for Mr. Isaac Jones; two houses, New-road, off Sketty-road, for Mr. M. D. Morgan; house, Middle-road, for Mr. D. Davies; sweet factory, 150, St. Helen's-avenue, for Mr. W. G. Collins; offices, Grandison-street, for Messrs. Lloyd & Penhale; bungalow, Murton-road, for Mr. Wm. Watkins; 13 garages, off Le Breos-avenue, for Dr. D. R. Edwards; house, West Cross-lane, for Mr. Ll. Thomas; four houses, West Cross-lane, for Messrs. Beynon & Davies; bungalow, Mumbles-road, Blackpill, for Mr. H. P. Honey; two houses, Swansea-road, Dunvant, for Mr. G. Thorne; house, Glanmor Estate, for Messrs. J. R. Banfield & Son; house, Clydach-road, Ynistawe, for Mr. E. T. Davies; house, Middle-road, for Mr. M. Charles; two houses, off Sketty-road, for Messrs. Brown & Rowe; house, Clydach-road, Ynistawe, for Mr. J. B. Williams; two houses, Mary Twill-lane, Langland, for Mr. John Evans; two houses, Sketty-road, for Mr. D. George; two houses, Beechwood-road, for Messrs. J. B. Jenkins & Son; six houses, Glanbrydan-avenue, for Messrs. Griff, Davies & Co.; house, Waunarlwydd-road, for Mrs. Rees; bungalow, Glynderwen-crescent, for Mr. C. G. Roberts; bungalow, Oystermouth-road, Blackpill, for Miss Parkinson; conversion of mission hall to bungalow, Boarspit-lane, Norton, for Mr. H. F. Maslen; classroom, St. Barnabas Church, Hawthorn-avenue, for the Vicar and Church-wardens; house, West Cross-lane, for Mr. H. L. Batcup; seven houses, Maple-crescent, for Messrs. John Pye & Co.; conversion of house into two, Felin-fran, Llansamlet, for Mrs. D. Evans; house, Oystermouth-road, Blackpill, for Mr. H. P. Honey; bungalow, Carmarthen-road, for Mrs. Williams; house and shop Newton-road, Mumbles; lock-up shop, Neath-road, Llansamlet, for Mr. W. Phillips.——The T.C. has adopted a report dealing with the opening up of an area on the east side of the town for building purposes. Alderman David Williams, M.P., said the area was some 3,000 to 4,000 acres, and within the next ten years—and even less—there would not be a yard of vacant land within the borough. Messrs. Palmer, who were building the new dry dock, would in the next three or four years be importing from 3,000 to 4,000 men in connection with their work. This firm alone were prepared to put up 500 houses for their workpeople, and other firms would be found to do the same.

TAMPORLEY.—The U.D.C. has passed plans for a house at Salter's Well, for Mr. H. P. Huxley.

THAKEHAM.—Local road improvement schemes which are being considered include the reconditioning of the Marehill to Nutbourne-road, £1,883; the Storrington-Coolham-road, £10,200; and the Alversane-Ashington-road, £10,450, making a total of £22,550, towards which it is anticipated that the Ministry of Transport will contribute.

THORNE.—The R.D.C. has submitted a scheme to the Ministry of Health for rendering assistance to private enterprise in the promotion of house building. The Clerk has reported that if assistance was granted 1,200 houses would be erected in the district.

THORNHILL.—The District Committee has decided to carry out an extensive improvement scheme on the Durisdeer-Dalveen-road. The road is to be widened to 16 ft. for a distance of three miles. The estimated cost is £5,600, of which sum the Treasury will pay £4,200, leaving £1,400 to be paid by the committee.

TREGARON.—The G.W.R. directorate is considering the erection of new station accommodation.

TYNEMOUTH.—Plans passed by T.C.: Shops and flats, Front-street, Chirton, by Messrs. F. R. N. Haswell & Son, for Mr. G. S. Scorer; rebuilding of premises, Bedford-street, by Mr. W. Stockdale, for Messrs. C. R. Park & Co.; social club, Silkeys-lane, Chirton, by Messrs. Steinlet & Dixon, for Chirton Social Club Institute; semi-detached houses, Queen Alexandra-road, by Mr. W. Stockdale, for Messrs. Ball Bros.; two houses corner Argyle-street and Hotspur-street, Tynemouth, by Mr. W. Stockdale, for Messrs. B. Peel, Ltd.; two houses corner Hotspur-street and Syon-street, Tynemouth, by Mr. W. Stockdale, for Messrs. B. Peel, Ltd.; shop and house, 58, Clive-street, by Mr. W. Stockdale, for Mr. Bouyoukas: four houses, Cleveland-road (Campville Estate), by Messrs. Hays & Gray, for Messrs. Hodgson & Swan.

UCKFIELD.—Plans passed by R.D.C.: House, Sweet Haws, Crowborough, for Mr. Buckingham; cottage, Old Mill, Mayfield, for Mr. A. J. Walton; house, Harlequin-lane, Crowborough, for Mr. C. H. Cruttenden; additions to house, West-street, Mayfield, for Mr. Hodges; bungalow, Station-road, Crowborough, for Mr. J. H. Troy; cottage, Steel Cross, Crowborough, for Captain Thompson; two houses and shops, Station road, Tilsmore, Waldron, for Mr. F. G. Collins; cottage, Queen's-road, Crowborough, for Mrs. Roberts; additions to house, Eridge-road, Crowborough, for Mr. J. Crittall.

UPHALL.—The Bathgate United Free Presbytery has passed plans for the erection of a new United Free Church at Uphall.

USK.—The Usk Agricultural College building is shortly to be erected, and work to be put in hand will include elaborate drainage system.— The Usk Council has nearly completed negotiations for land frontage for scheme of road widening to be put in hand.

UTTOXETER.—Inspector Cox, of the Ministry of Health, has held an inquiry with reference to an application by the U.D.C. for power to borrow £27,000 for the purpose of acquiring an additional supply for the town from the springs at Quixhill.

WALLASEY.—The Housing Committee have accepted a tender of £16,950 for the erection of 30 houses in Belvedere-road. The Ministry of Health have sanctioned the borrowing of £17,470 for the erection of 42 houses on the Mill-lane site. Borrowing powers are also being sought for the Belvedere-road contract.

WALLSEND.—Major J. Stewart, Inspector of the Ministry of Health, has held an inquiry into the application of the T.C. to borrow £4,600 for private street improvement works.

WHITEFIELD.—The Council approved scheme for a bowling green 44 yards square, bowl house, w.c., shelter, &c. Estimates are to be obtained for these works, also for the necessary fencing.

WIGAN.—Permission has been given by the B.C. to the Colliery Explosives Co., Ltd., Earlestown, for a new factory for the manufacture and storing of explosives to be erected at Hawkley Hall, Carr's-lane, Wigan.

WILLESDEN.—Plans passed by the U.D.C.: Conversion of house to shop, 307, Cricklewood Broadway, for Mr. H. C. Brown; eight lock up garages, Bridge road, Willesden, by Mr. H. Shaw, for Mr. R. S. Avery; additions to shop, 71, Craven Park-road, Harlesden, by Mr. H. Shaw, for Messrs. Williams Bros.; eight houses, Dollis Hill-lane, Cricklewood, for Messrs. Farrow & Conner; two houses, 26 and 27, Sidmouth-road, for Messrs. C. W. B. Simmonds; boiler house at factory, Oxgate-lane, by Messrs. Forsyth & Maule, for E. Brown & Sons; machine shop, Oxgate-lane, Cricklewood, by Messrs. Forsyth & Maule, for E. Brown & Sons; ten houses with garages, Melrose-avenue, Cricklewood, by Mr. Jesse Catton, for Broadway Properties, Ltd.; two houses, North-way, Neasden, by Mr. E. J. W. Hider, for Mr. Ernest Wilson; two houses, Herbert-gardens, Harlesden, by Mr. Arthur Welford, for Messrs. Jermey & Son; four houses, 87, 88, 89, 90, Dewsbury-road, Willesden, for Mr. A. Pearce; house, North-way, Kingsway Garden Village, Neasden, by Mr. James Denton, for Mr. E. W. Hinbest; four houses, North-way, Kingsbury Garden Village, Neasden, for Mr. F. Marks.

WINCHESTER.—Plans passed by R.D.C.: Addition to the Bridge Inn, Shawford; farm cottage at Northbrook (H. Orchard); bungalow at Littleton (F. Oxenbury); bungalow at King's Worthy (T. Whitcher); garage at Wonston (H. J. Gardiner); cottages at Wonston (H. J. Gardiner); houses at Itchen Abbas (Sir J. Shelley-Rolls); house, Fair Oak (C. Ames).

WINDSOR.—Plans passed by T.C.: Messrs. J. & H. Ottrey, drainage of Clewer Mead; Messrs. J. & H. Ottrey, drainage of "Hadspen," Dedworth-road; Mr. J. H. Weaver, bungalow, Parsonage-lane; Berks and Bucks Motor Co., Ltd., three motor lock-ups, Keppel-street; Mr. L. H. Pollard, bungalow, Parsonage-lane.

WOMBWELL.—The U.D.C. are considering the question of extending the bath, and the fitting of a new movable floor so that the hall can be used for public meetings.

WORTLEY (S. YORKSHIRE).—The R.C. have decided to construct a new road from the "Crown" Inn, extending to Hangmanstone Bar, at an estimated cost of £60,000.

YARMOUTH.—The plans passed by the T.C. for a new arcade from King-street, running west, and curving into Regent-street, at its junction with South Howard-street, provide for the erection of forty lock-up shops. The arcade will have a width of 14 ft., and be roofed over. It will take in Row 74, the south side of Row 73, and the north side of Row 78. It will mean the demolition of over forty small houses, and this prevents the work being put in hand immediately. As soon as other houses are available for the occupiers the rows can be cleared, and building operations started.

FIRES

CARDIFF.—A warehouse in Wesley-lane, belonging to Messrs. W. Kent & Co., has been almost destroyed by fire.

CIRENCESTER.—Barton Mill, occupied by Messrs. R. Townsend & Co., has been gutted by fire.

DONCASTER.—Damage caused by fire at Messrs. Hanley & Sons' flour mills, on Saturday, is estimated at £100,000.

GLASGOW.—Considerable damage by fire has been caused at the premises of J. Hart, 43, Mitchell-street, printer and stationer, and at the tailoring workshop of H. Brown, 37, Jamaica-street.

PONTEFRACT.—The garage of Messrs. Ewbank & Co., Wakefield-road, has been destroyed by fire.

NEW BUILDINGS IN LONDON.

Earlsfield.—FACTORY.—The Columbia Gramophone Co., Ltd., are about to extend their factory at Earlsfield to more than double its capacity.

Fleet-street.—BANK.—The general contractors for Barclays Bank in Fleet-street are Allen Fairhead & Son. The sub-contractors are as follow:—Stonework, F. J. Barnes, Ltd., 25, Nine Elms-lane, S.W.8; steelwork, Sanders & Forster, Thames Works, Hertford-road, Barking; lifts, Aldous & Campbell, Ltd., Lower Bland-street, Great Dover-street, S.E.1; electric light wiring, A. & F. Goodwin, 28, Minories, E.1. Messrs. C. J. Dawson, Son & Allardyce, Clock House Chambers, Barking, are the architects.

St. Pancras.—HOUSING SCHEME.—The architect of the B.C. has prepared estimates and plans for a housing scheme situated between the north side of Aldenham-street and the south side of Johnson-street, and including the east and west sides of Wolcot-street, this being the southern portion of the area included in the original scheme. The scheme presented by the architect comprises 72 flats, of two and three rooms in equal proportion, each having, in addition, a scullery, bathroom, lavatory, &c. The flats are contained in four blocks of 16, and one block of 8, each block consisting of four stories. The estimated cost of the work, including architects', quantity surveyors', &c., fees, is £49,110, and the value of the land is approximately £13,500, making a total expenditure of £62,610. Accommodation would be provided for 360 persons, as compared with 309 persons who would be displaced. The scheme is to be forwarded to the Ministry of Health.

London Stonemasons.

The majority of the London stonemasons came out on strike this week in support of a demand for a 3d. per hour increase in wages.

We are informed that as the result of the interchange of views between the national representatives of the builders and operatives, the representatives of the Regional Council for London is advised to hold a meeting at the earliest possible date, with the object of dealing with wages, hours of labour, and overtime. There is every possibility that the dispute may be ended this week.

PRICES CURRENT OF MATERIALS.*

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.—Ed.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.

	£ s. d.
Best Stocks	4 2 0
Second Hard Stocks	3 17 0

Per 1,000. Delivered at London Goods Stations.

	£ s. d.		£ s. d.
Flettons, at King's Cross	2 13 3	Best Blue Pressed Staffs.	9 11 6
Do. grooved for plaster	2 15 3	Do. Bullnose	10 1 6
Do. Bullnose	3 8 3	Blue Wire Cuts	7 11 6
Best Stourbridge Fire brick:—			
2½ in.	11 3 0	3 in.	13 2 0
GLAZED BRICKS—			
Best White Ivory, and Salt Glazed Stretchers	22 0 0	D'ble Str'tch'rs	30 10 0
		D'ble Headers	27 10 0
		One Side and two Ends	31 10 0
Headers	21 10 0	Two Sides and one End	32 10 0
Quoins. Bullnose and 4½ in.		Splays and Squints	30 0 0
Flats	28 10 0		

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

BREEZE CONCRETE SLABS.

Delivered London.

	s. d.		s. d.
2 in. per yd. super	2 1	3 in. per yd. super	2 9
2½ in. "	2 5	4 in. "	3 7

	s. d.	
Thames Ballast	10 6	per yard.
Pit Sand	14 9	" "
Thames Sand	15 6	" "
Best Washed Sand	15 6	" "
¾ in. Shingle for Ferro-Concrete	14 0	" "
½ in. " "	15 0	" "
¾ in. Broken Brick	10 6	" "
Pan Breeze	5 6	" "

delivered 2 miles radius Paddington.

Per ton delivered in London area in full van loads.

Best Portland Cement, British Standard Specification Test £2 18 0 to £3 3 6

51/- alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above	0 10 0
Super Cement	4 8 0
Roman Cement	8 15 0
Parian Cement	5 13 0
Keene's Cement, White	5 8 0
" " Pink	5 3 0
Plaster, Coarse, Pink	3 0 0
" " White	3 12 6
" Fine	5 12 0
Sirapite, Coarse	3 9 6
" Finish	3 17 6
Grey Stone Lime	2 10 9
Chalk Lime	2 10 9
Best Ground Blue Lias Lime	2 13 6
Hair	17 0 0
Granite Chippings	1 12 0

NOTE.—Sacks are charged 1s. 9d. each and credited 1s. 6d. if returned in good condition within three months, carr. pd.

Stourbridge Fireclay in s'cks 35s. 0d. per ton at rly. dpt.

STONE.

	s. d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	2 9½
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R., per ft. cube	2 11½
PORTLAND STONE—	
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L. & S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 4
Do. do. delivered on road wagons at above stations, per ft. cube	4 5
White basebed, 3d. per ft. cube extra.	
NOTE.—½d. ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.	
HOPTON-WOOD STONE.	
Delivered at any Goods Station, London.	
Small random blocks, up to 10 ft. cube. Per ft. cube	7/-
Random blocks from 10 ft. and over "	17/-
Sawn two sides "	27/-
Sawn three or four sides "	32/-
YORK STONE, BLUE—*Robin Hood Quality.*	
Delivered at any Goods Station London.	s. d.
6 in. sawn two sides landings to sizes (under 30 ft. super.) Per Ft. Super	5 3
6 in. rubbed two sides, ditto "	5 9
3 in. sawn two sides slabs (random sizes) "	2 1½
2 in. to 2½ in. sawn one side slabs (random sizes) "	1 5½
1½ in. to 2 in. ditto, ditto "	1 3
HARD YORK—	
Delivered at any Goods Station London.	
Scappled random blocks Per Ft. Cube	5 6
6 in. sawn two sides landing to sizes (under 40 ft. super.) Per Ft. Super	5 4½
6 in. rubbed two sides ditto "	6 0½
4 in. sawn two sides slabs (random sizes) "	2 10
3 in. ditto. ditto "	2 5
2 in. self-faced random flags Per Yard Super	7 11

ARTIFICIAL STONE.

Delivered in London Area in full van loads.	s. d.
Plain per ft. cube	6 6
Moulded " "	7 9
Cills " "	8 3

WOOD.

GOOD BUILDING DEAL.

Inches.	per stan.	Inches.	per stan.
4 × 11	£34 0	3 × 6	£25 0
4 × 9	34 0	3 × 11	34 0
4 × 8	29 0	2 × 11	34 0
4 × 7	28 0	3 × 9	33 0
3 × 8	26 10	2½ × 9	33 0
3 × 7	26 0	3 × 4½	24 0
2½ × 7	26 0	3 × 4	24 0

WOOD (*Continued*).

PLANED BOARDS.

1 × 11	£38 10	1 × 9	£36 0

PLAIN EDGE FLOORING.

Inches.	per sq.	Inches.	per sq.
⅝	21/-	1¼	33/6
¾	23/-	1½	38/6
1	26/6		

TONGUED AND GROOVED FLOORING. Inches.	per sq.	MATCHINGS (BEST). Inches	per sq.
1	26/6	⅝	17/6
1¼	33/6	¾	22/-
1½	38/6	1	26/-

Inches	BATTENS	s. d.
¾ × 2		2 4 per 100 ft.

SAWN LATHS.

Per bundle				0	2 10
Dry Wainscot Oak, per ft. super, as inch	0	2 0	to	0	2 6
½ in. do. do.	0	1 6	to	0	2 0
Dry Mahogany—Honduras, Tabasco, African, per ft. super, as inch	0	1 9	to	0	2 6
Cuba Mahogany	0	3 0	to	0	3 6
Teak (Rangoon, Moulmein or Java), per load	45	0 0	to	50	0 0
American Whitewood planks, per ft. cube	0	14 0	to	0	16 0
Best Scotch Glue, per cwt.	4	10 0	to	—	
Liquid Glue, per cwt.	4	7 0	to	5	10 0

SLATES.

1st quality slates from Bangor or Portmadoc in truck loads delivered London area. Per 1,000 of 1,200.

	£ s. d.		£ s. d.
24 by 12	37 12 6	18 by 10	21 2 6
22 by 12	34 0 0	18 by 9	18 12 6
22 by 11	31 5 0	16 by 10	17 12 6
20 by 12	29 15 0	16 by 8	13 15 0
20 by 10	25 12 6		

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles from Broseley or Staffordshire district	5 7 6
Ditto hand made ditto	5 12 6
Ornamental ditto	5 17 6
Hip and valley tiles (per dozen) { Hand made	0 9 6
Machine made	0 9 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—	£ s. d.
R. S. Joists, cut and fitted	13 10 0
Plain Compound Girders	15 10 0
Stanchions	17 10 0
In Roof Work	20 10 0

MILD STEEL ROUNDS.

To London Station, per ton.

Diameter.	£ s. d.	Diameter.	£ s. d.
½ in.	16 10 0	⅝ in. to ⅞ in.	13 10 0
⅜ in.	14 10 0	1 in. to 2½ in.	13 0 0

WROUGHT-IRON TUBES AND FITTINGS—

(Discount off List for lot of not less than £7 net value delivered direct from Works, 2½ per cent. less above gross discounts, carriage forward if sent from London Stocks.)

	Tubes.	Fittings.	Flanges.
Gas	52½%	52½%	62½%
Water	47½%	47½%	57½%
Steam	42½%	42½%	52½%
Galv'd—			
Gas	37½%	42½%	52½%
Water	31½%	37½%	47½%
Steam	25 %	32½%	42½%

C.I. HALF-ROUND GUTTERS—London Prices, ex Works.

Per yd. in 6 ft. lengths.	Gutters.	Angles and Nozzles.	Stop Ends.
3 in.	1/1½	11d.	3½d.
3½ in.	1/2½	1/0½	3½d.
4 in.	1/4	1/1½	3½d.
4½ in.	1/5½	1/4	4d.
5 in.	1/7½	1/5½	5d.

O.G. GUTTERS.

3 in.	1/6½	1/2½	3½d.
3½ in.	1/6½	1/2½	3½d.
4 in.	1/7½	1/4	3½d.
4½ in.	1/9½	1/6½	4d.
5 in.	2/1½	1/9	5d.

RAIN-WATER PIPES, &c.

Per yd. in 6 fts.	Pipe.	Bends, stock angles.	Branches, stock angles.
2 in. plain	1/7½	1/1½	1/8
2½ in. "	1/9½	1/4	2/0½
3 in. "	2/1½	1/8	2/5½
3½ in. "	2/6½	1/11½	2/10½
4 in. "	2/11½	2/4½	3/5½

L.C.C. COATED SOIL PIPES—London Prices ex works.

	Pipe.	Bends, stock angles.	Branches, stock angles.
	s. d.	s. d.	s. d.
2 in. per yd. in 6fts plain	3 0½	2 2½	2 8
2½ in. "	3 6½	2 5½	3 3½
3 in. "	4 2½	2 8	4 0½
3½ in. "	4 7	3 3½	4 8½
4 in. "	5 1	3 9½	5 5

L.C.C. COATED DRAIN PIPES—London Prices ex works.

	Pipe.	Bends, stock angles.	Branches, stock angles.
	s. d.	s. d.	s. d.
3 in. per yd. in 9ft. lengths	4 9	5 8	8 10
4 in. " "	6 3	6 8	11 4
5 in. " "	7 6	11 6	18 2
6 in. " "	8 10	14 4	23 5

Per ton in London.

IRON—	£ s. d.		£ s. d.
Common Bars	14 0 0	to	15 0 0
Staffordshire Crown Bars—good merchant quality	14 10 0	..	15 10 0
Staffordshire "Marked Bars"	17 0 0	..	18 0 0
Mild Steel Bars	13 10 0	..	14 10 0

METALS (*Continued*).

	£ s. d.		£ s. d.
Steel Bars, Ferro-Concrete quality, basis price	13 10 0	..	14 10 0
Hoop iron, basis price	16 10 0	..	17 10 0
Galvanised	31 0 0	..	32 0 0
Soft Steel Sheets, Black—Ordinary sizes to 20 g.	15 10 0	..	16 10 0
" " " 24 g.	16 10 0	..	17 10 0
" " " 26 g.	18 10 0	..	19 10 0
Sheets Flat Best Soft Steel, C.R. & C.A. quality—Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	21 10 0	..	22 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g.	22 10 0	..	23 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 26 g.	24 10 0	..	26 10 0
Flat and Galvanised Corrugated Sheets—Ordinary sizes, 6 ft. to 9 ft. to 20 g.	21 0 0	..	22 0 0
Ordinary sizes, 6 ft. to 9 ft. to 22 g. and 24 g.	21 10 0	..	22 10 0
Ordinary sizes, 6 ft. to 9 ft. to 26 g.	23 10 0	..	24 10 0
Sheets Galvanised Flat, Best quality—Best Soft Steel Sheets, 6ft. by 2ft. to 3ft. to 20g. and thicker	23 10 0	..	24 10 0
Best Soft Steel Sheets, 22 g. and 24 g.	24 10 0	..	26 10 0
Best Soft Steel Sheets, 26 g.	26 0 0	..	27 0 0
Cut Nails, 3in. to 6 in.	21 10 0	..	23 0 0

(under 3in. usual trade extras.)

METAL WINDOWS—Standard sizes suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1/4 to 1/7 per foot super.

LEAD, &c.

(Delivered in London.)	£ s. d.		
LEAD—Sheet, English, 4 lb. and up	35 0 0	..	—
Pipe in coils	35 10 0	..	—
Soil Pipe	38 10 0	..	—
Compo pipe	41 0 0	..	—
NOTE—Country delivery, 30s. per ton extra; lots under 3 cwt., 2s. per cwt. extra and over 3cwt. and under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra.			
Old lead, ex London area, at Mills per ton	22 10 0	..	—
Do., ex country, carriage forward per ton	23 10 0	..	—

PLUMBERS' BRASS WORK.

Delivered in London.

NEW PATTERN SCREW DOWN BIB COCKS FOR IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
29/-	45/-	76/-	153/-	246/-	510/- per doz.

NEW RIVER PATTERN SCREW DOWN STOP COCKS AND UNIONS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in
41/6	62/-	92/-	174/-	300/-	558/- per doz.

NEW RIVER PATTERN SCREW DOWN MAIN FERRULES.

½ in.	¾ in.	1 in.
39/6	60/-	116/6 per doz

CAPS AND SCREWS.

1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
7/6	10/-	14/-	23/-	30/-	42/- per doz.

DOUBLE NUT BOILER SCREWS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2in.
7/6	11/6	17/-	29/-	36/-	63/- per doz.

BRASS SLEEVES.

1½ in.	2 in.	3 in.	3½ in.	4 in.
10/-	12/-	20/-	24/-	31/- per doz.

NEW RIVER PATTERN CROYDON BALL VALVES. S.F.

½ in.	¾ in.	1 in	1¼ in,	1½ in.
35/-	56/-	98/-	162/-	228/- per doz.

DRAWN LEAD P. & S. TRAPS WITH BRASS CLEANING SCREW.

	1½ in.	1½ in.	2 in.	3 in.
8 lbs. P. traps	33/-	41/-	56/-	101/- per doz
8 lbs. S. traps	35/-	45/-	66/-	126/-

COPPER—	£ s. d.		
Strong Sheet per lb.	0 2 3	..	—
Thin " "	0 2 4	..	—
Copper nails "	0 2 3	..	—
Copper wire "	0 2 4	..	—
TIN—English Ingots "	0 2 0	..	—
SOLDER—Plumbers' "	0 0 11	..	—
Tinmen's "	0 1 1	..	—
Blowpipe "	0 1 3	..	—

PAINTS, &c.

	£ s. d.
Raw Linseed Oil, in pipes per gallon	0 3 8
" " " in barrels "	0 3 8
" " " in drums "	0 3 11
Boiled " " in barrels "	0 4 0
" " " in drums "	0 4 2
Turpentine in barrels "	0 6 8
" in drums (10 gall.) "	0 6 11
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)	56 5 0
GENUINE WHITE LEAD PAINT—"Father Thames," "Nine Elms," "Park," "Supremus" and other best brands (in 14 lb. tins) not less than 5 cwt. lots per ton delivered	77 0 0
Red Lead, Dry (packages extra) per ton	42 0 0
Best Linseed Oil Putty per cwt.	0 16 0
Filocoi per cwt.	0 15 6
Size. XD Quality fkn.	0 3 6

[Concluded on next page.]

* The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

PRICES CURRENT OF MATERIALS (*contd.*)

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES.

	Per Ft.		Per Ft.
15 oz. fourths	3½d.	32 oz. fourths	8½d.
15 ,, thirds	4½d.	32 ,, thirds	10½d.
21 ,, fourths	5d.	Obscured Sheet, 15 oz.	4d.
21 ,, thirds	6½d.	21 ,,	5½d.
26 ,, fourths	6d.	Fluted 15oz. 6½d., 21oz.	9½d.
26 ,, thirds	7½d.	En'lled 15 ,, 5½d., 21 ,,	7½d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
⅛ Rolled plate	4½d.
⅛ Rough rolled	5½d.
¼ Rough rolled	5½d.
Figured Rolled, Oxford Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish white	6½d.
Ditto, tinted	9d.
Rolled Sheet	6
White Rolled Cathedral	5½d.
Tinted do.	7½d.

Cast Plate is same price as rough rolled.

VARNISHES, &c.

		Per gallon. £ s. d.
Oak Varnish	Outside	0 14 0
Fine ditto	ditto	0 16 0
Fine Copal	ditto	0 18 0
Pale Copal	ditto	1 0 0
Pale Copal Carriage	ditto	1 4 0
Best ditto	ditto	1 12 0
Floor Varnish	Inside	0 18 0
Fine Pale Paper	ditto	0 18 0
Fine Copal Cabinet	ditto	1 2 6
Fine Copal flatting	ditto	1 0 6
Hard drying Oak	ditto	0 18 0
Fine Hard drying Oak	ditto	0 19 0
Fine Copal Varnish	ditto	1 0 0
Pale ditto	ditto	1 2 0
Best ditto	ditto	1 12 0
Best Japan Gold Size		0 12 0
Best Black Japan		0 12 0
Oak and Mahogany Stain (water)		0 12 0
Brunswick Black		0 9 0
Berlin Black		0 14 0
Knotting (patent)		1 5 0
French and Brush Polish		0 17 6
Liquid Dryers in Terebine		0 9 0
Cuirass Black Enamel		0 7 0

TRADE NEWS.

Mr. J. Attwood, of Foster-street, Stourbridge, has issued a new catalogue of heating specialities, which includes many new lines. This firm manufactures the well-known "Eclipsem," "Acme," and "Cultivatum" apparatus; the "Cultivatum" boiler is specially designed for heating greenhouses.

Among the exhibits at the Cycle and Motor-Cycle Exhibition at Olympia on October 15 will be the "A.L." products of Allen-Liversidge, Ltd., of 106, Victoria-street, Westminster, S.W.1. These are apparatus for brazing, lead burning, plumbing, soldering, paint burning, and sundry uses in the building and kindred trades as well as other industries.

A. & J. Main & Co., Ltd. (late Armstrong & Main, Ltd.), of Australia House, Strand, W.C.2, announce that the reorganisation of the business has now been completed. All the company's branches are retained, and the Clydesdale Works in Glasgow and Calcutta Bridge and Roof Works in Calcutta are now more fully equipped than before to deal with the same classes of steel structural work as in the past, as well as fencing, railings, and gates of every description.

Messrs. J. Manger & Son, Ltd., the old-established firm of soda manufacturers, of 57, High-street, London, E.8, have added a new line to their well-known "Quality" products. This takes the form of a sugar soap for cleaning paint and woodwork, and should be specially useful in building repair and decorative work. In addition to the ease with which it cleans woodwork and other materials, it has strong disinfectant properties. We are informed that this product, which has only been on the market for a short time, is already being extensively adopted.

A very informative and useful booklet has been issued by the Lighting Service Department of the British Thomson-Houston Co., Ltd., giving concise data relating to the design of lighting systems for factories. The booklet is intended for the use of architects, engineers, manufacturers and others who are responsible for the installation and maintenance of, and extensions to, electric lighting systems in factories. Good lighting, to meet industrial requirements, can only be obtained after the very careful consideration of essential factors which, combined, necessitate numerous intricate calculations. Among these factors the height of workshop, the size of bays, and the spacing of units are a few of the most important. The designs in this booklet have been carefully compiled and are presented in such a manner that tedious calculations are entirely eliminated. One can obtain at a glance, given the height of workshop, size of bays, and the amount of illumination required, the exact spacing and type of units necessary to produce the best results. It will be found that a suitable design is available to meet the requirements of any workshop or factory with little or no alteration. The offices of the Lighting Service Department of the British Thomson-Houston Co., Ltd., are at 15, Savoy-street, W.C.2.

The illustration of the "Lefco" fireplace given below is from a catalogue just issued by the manufacturers, the Leeds Fireclay Co.,

Ltd., of Wortley, Leeds, which contains illustrations and particulars of a selection of various types of this fireplace. These fireplaces are made of Burmantofts terra-cotta—a material possessing a vitreous matt surface, which can be cleaned easily with a damp cloth. All iron-work is eliminated, and there is, therefore, nothing to rust and no unnecessary black-leading and cleaning. If the fireplace is preferred fitted with iron grate, ash pan and barless front, this can easily be arranged. These fireplaces are made with a minimum of jointings, and are therefore easily fitted into position. They are made only in a speckled-brown biscuit colour.

Liverpool Housing.

The report on the health of Liverpool during 1922 by the Medical Officer of Health states that 2,243 dwelling-houses have been erected in the city during that period, of which three are rented at £25 to £35 per annum, and the remainder at £35 and upwards. Of the total number erected 2,109 have been built under the direction of the Housing Department, these forming parts of Government-assisted schemes.

NEW BUILDINGS IN SCOTLAND.

Brechin.—HOUSES.—The T.C. has decided to erect two four-roomed houses under the Board of Health's original scheme.

Leith.—HOUSES.—The Housing Sub-Committee of the Edinburgh Corporation has received tenders for the erection of 66 houses at St. Clair-street, Leith. The lowest tender worked out at a little more than £350 per house.

Clarkston.—SCHOOL.—The Master of Works to the Lanarkshire Education Authority has been requested to prepare an estimate for a new school at Clarkston.

Portobello.—CONVERSIONS.—The Wakefield City Council is applying to the Health Ministry for sanction to borrow £3,000 for the adaptation of four houses as shops.

Whitecraigs.—HOUSES.—Plans have been passed by the Buildings Committee of the Upper District of Renfrewshire for the following:—House in Elphinston-road, for Mr. H. Thomson; villa at Craignethan-road, for Mr. J. G. Williamson; villa at Roddinghead-road, for Mr. W. Rowell; villa at Roddinghead-road, for Mr. G. Robin.

Murthly.—PUBLIC HALL.—Funds are being raised for a new public hall for the village of Murthly, Perthshire, the sum of £960 having been raised up to the present.

Ayr.—DWELLINGS.—The Dean of Guild Court has passed the following plans:—20 two-story cottages in Marchfield, estimated to cost £14,000, for Mr. T. McWhirter; Mr. R. Hutchinson, six houses of the bungalow type, to be erected in Robbsland-avenue off Monument-road, at an estimated cost of £4,900; Mr. W. Telfer, for a double cottage in Hunter's-avenue, the cost of which is estimated at £1,600; Mr. F. H. McPherson, for two bungalows in Robbsland-avenue, at a cost of £2,400. The question of extension and reconstruction of the slaughter-house has been referred to a special sub-committee.

Kirkcaldy.—VARIOUS.—The T.C. is considering the erection of a slaughter-house on a more convenient site. The Dean of Guild Court has passed plans for three houses and two shops at the corner of Sutherland and Viewforth-streets, for Mr. J. Malcolm, builder; and a cottage at William-street, for Mr. R. D. Venters.

Hamilton.—HOUSES.—The T.C. has approved of plans prepared by Mr. James Lochhead, architect, Hamilton, for the improvement of insanitary areas in the fourth ward. Under the scheme the erection of 120 houses will be proceeded with. The estimated cost is £37,424.

Kilwinning.—HOUSES.—The T.C. has concluded contracts for the erection of 14 houses on the Stevenson-road site, amounting to £5,702 5s. 7d. The Northern District Committee of Ayrshire has passed plans for new buildings, including a cottage at Kilwinning, cottages at West Kilbride and Portencross, two bungalows at Kilbirnie, houses at Largs and West Kilbride, and two "flatted" houses at Southannan and Fairlie.

Giffnock.—HOUSES.—The Buildings Committee of the Upper District of Renfrewshire has passed the following plans for houses at Giffnock:—Villa, Eastwood Mains-road, for Mr. J. Crofts; double cottage, Milverton-road, for Mr. M. Wallace; bungalow, Davieland-road, for Mr. Pitt; double villa, St. Ann's-drive, for Mr. P. Gray.

Broughty Ferry.—SWIMMING BATHS.—The Dundee Corporation Markets and Baths Sub-Committee will report on the estimated cost of providing a swimming pond with six plunge baths, six washing stalls, one extractor, and a drying machine.

Yoker.—HOUSES.—The Housing Committee for the Upper District of Renfrewshire recommends the erection of 60 houses at Yoker by the District Committee.

Rutherglen.—HOUSES.—The T.C. has fixed contracts for the erection of 58 houses on the Gallowflat site, and they propose to borrow £30,000 to carry out the work.

CURRENT PRICES FOR BUILDING WORK IN LONDON.*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	11	6
Add if in clay	" "	1	0
Add for every additional depth of 6 ft.	" "	0	6
Planking and strutting to trenches	per foot super	0	5
Do. to sides of excavation, including shoring	" "	1	0

CONCRETOR.

		s.	d.
Portland cement concrete in foundation 1 to 6	per yard cube	35	0
Add if in underpinning in short lengths	" "	7	6
Add if in floors 6 in. thick	" "	3	6
Add if in beams	" "	4	0
Add if aggregate 1 : 2: 4	" "	10	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	" "	3	3

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	30	0	0
Add if in stocks	"	7	10	0
Add if in Staffordshire blues	"	22	0	0
Add if in Portland cement and sand	"	2	0	0

FACINGS.

		s.	d.
Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1½

POINTING.

		s.	d.
Neat flat struck or weathered joint	" "	0	0	3

ARCHES.

		s.	d.
Extra only to the price of ordinary brickwork :—			
Fair external in half brick rings	" "	0	0	10
Axed in stocks	" "	0	1	9
Rubbed and gauged jointed in putty camber or segmental	" "	0	6	0

SUNDRIES.

		s.	d.
Damp course in double course of slates breaking joint and bedded in Portland cement	" "	0	1	1
Setting ordinary register grates and stoves	each	1	0	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	"	4	15	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard sup.	4	3
Three-quarter-inch vertical damp course	" "	9	0
¾ inch on flats in two thicknesses	" "	6	6
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	3

MASON.

		s.	d.
York stone templates fixed	per foot cube	12	6
York stone sills fixed	" "	21	6
Bath stone and all labour fixed	" "	10	6
Portland stone fixed	" "	19	6

SLATER.

		s.	d.
Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	72	9
Do. 20 in. × 10 in. Do. Do.	"	80	9
Do. 24 in. × 12 in. Do. Do.	"	90	0

CARPENTER AND JOINER.

		s.	d.
Fir framed in plates	per foot cube	5	3
Do. joists	" "	5	9
Do. roofs, floors and partitions	" "	6	3
Do. trusses	" "	8	3

		¾"	1"	1¼"	2"
Deal rough close boarding	per sq.	38/-	44/-	50/-	80/-

		s.	d.
Flat centering for concrete floor, including struts or hangers	"	50	0
Do. to beams	per ft. sup.	1	0
Centres for arches	"	1	6
Gutter boards and bearers	"	1	0

FLOORING.

		¾"	1"	1¼"	1½"
Deal-edges shot	per sq.		49/-	58/-	67/-
Do. tongued and grooved	"		54/-	65/-	72/-
Do. matchings	"	45/-	55/-		
Moulded skirting, including backings and grounds	per ft. sup.	1/6	1/9	2/0	2/6

SASHES AND FRAMES.

		s.	d.
One-and-a-half moulded sashes or casements	per foot super	1	10
Two Do. Do. Do.	" "	2	1
Add for fitting and fixing	" "	0	4
Deal-cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares double hung, double hung with pulleys, lines and weights; average size	" "	3	9

DOORS.

		1½"	1¾"	2"
Two-panel square framed	per ft. sup.	2/1	2/4	2/6
Four-panel Do.	"	2/5	2/8	2/11
Two-panel moulded both sides	"	2/8	2/11	3/2
Four-panel Do. Do.	"	2/11	3/2	3/5

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	14	0

		1"	1¼"	1½"
Plain deal jamb linings framed	per ft. sup.	1/8	1/9	2/0
Deal shelves and bearers	"	1/5	1/7	1/10
Add if cross tongued	"	2d.	2d	2d.

STAIRCASES.

	1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough brackets	2/1	2/4	2/9	—	—
Deal strings wrot on both sides and framed	1/8	2/-	2/2	2/8	—

		s.	d.
Housings for steps and risers	each	0	11
Deal balusters, 1 in. × 1¼ in.	per ft. run.	0	9
Mahogany handrail; average 3 in. × 3 in.	" "	6	0
Add if ramped	" "	11	10
Add if wreathed	" "	23	9

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/4
Sash fasteners	11½d.	Mortice locks	5/3
Casement fasteners	1/5	Patent spring hinges and letting in to floor and making good	19/-
Casement stays	1/2		
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	17	0
Plain compound girders	"	20	0
Do. stanchions	"	23	0
In roof work	"	28	0

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints	ft. run	1/11	2/4½	3/7	4/-
Ogee Do. Do.	"	2/4½	3/1	3/10	4/9
Rain-water pipes with ears	"	2/9	3/7		
Extra for shoes and bends	each	4/4	5/11		
Do. stopped ends	"	1/11	2/4½	3/7	4/-
Do. nozzles for inlets	"	2/2	2/7	3/10	4/3

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	51	0
Do. Do. in flats	"	49	0
Extra labour and solder in coated cesspools	each	6	9
Welt joint	per ft. run.	0	6
Soldered seam	" "	1	6
Copper nailing	" "	0	6

		¼"	¾"	1"	1½"	2"	4"
Drawn lead waste	per ft. run	10d	1/3	1/9	3/1	3/10	
Do. service	"	1/5	1/11	2/3	3/6		
Do. soil	"						6/2
Bends in lead pipe	each					3/3	8/2
Soldered stop ends	"	1/2	1/8	2/1	2/10	3/6	
Red lead joints	"	11d.	1/-	1/3	1/11	2/4	4/10
Wiped soldered joints	"	2/10	3/6	4/-	4/11	6/6	9/9
Lead traps and cleaning screws	"				14/7	19/6	
Bib cocks and joints	"	6/4	9/7	15/4	41/-		
Stop cocks and joints	"	15/4	17/2	25/8	64/-		

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	2	3
Do. Do. Sirapite	" "	2	6
Do. Do. Keen's	" "	3	6
Add sawn lathing	" "	1	5
Add metal lathing	" "	2	3
Portland cement screed	" "	1	10
Do. plain face	" "	3	0
Mouldings in plaster	per 1 girth	0	1½
One-and-a-half granolithic pavings	per yard sup.	5	9

GLAZIER.

		s.	d.
21 oz. sheet plain	per foot sup.	0	9
26 oz. Do.	" "	1	1
Obscured sheet	" "	1	3
⅛ in. rolled plate	" "	0	9
¼ in. rough rolled or cast plate	" "	0	11
¼ in. wired cast plate	" "	1	5

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	0	9
Knotting and priming	" "	0	7
Plain painting 1 coat	" "	0	9
Do. 2 coats	" "	1	2
Do. 3 coats	" "	1	9
Do. 4 coats	" "	2	4
Graining	" "	2	3
Varnishing twice	" "	1	9
Sizing	" "	0	3
Flatting	" "	0	7
Enamel	" "	1	1
Wax polishing	per foot sup.	0	6
French polishing	" "	1	2
Preparing for and hanging paper	per piece	2/- to 4/-	

* These prices apply to new buildings only. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach him not later than Tuesday evening.
* Denotes accepted. † Denotes provisionally accepted.
‡ Denotes recommended for acceptance.
§ Denotes accepted subject to modifications.

ALNWICK.—For the erection of a second group of 24 workmen's houses in Swansfield Park-road area, for the U.D.C.:—
*Chas. Thompson & Sons, Alnwick.. £9,089

BARNSLEY.—For the erection of Central School in Longcar-lane, for the T.C.:—
Excavating, masonry and bricklaying—
*Mellor, Barnsley £6,049 0 0
Erection of boundary walls—
*Mellor, Barnsley 863 7 0
Carpentry and joinery—
*William Goodyear & Sons, Barnsley 2,237 0 0
Slating—
*Dawber, Barnsley 362 14 0
Plumbing and glazing—
*Snowden, Barnsley 1,200 0 0
Plastering—
*Markwell & Austin, Barnsley.. 455 11 3
Painting—
*George Oates & Sons, Ltd., Barnsley 182 12 4

BEDFORD.—For alterations and extension to chancel of St. Andrew's Church, for the Vicar and Parochial Council. Mr. George P. Allen, architect and surveyor, 79, High-street, Bedford:—
*J. Corby & Son, Bedford..... £139

BEDFORD.—For alterations and decorations, &c., to the *Bedfordshire Times and Independent* offices, Mill-street. Mr. George P. Allen, architect and surveyor, 79, High-street, Bedford:—
*F. Gale, Bedford.

BEDFORD.—For materials in connection with water mains in Goldington and Kimbolton-roads, for the B.C.:—
*Staveley Coal & Iron Co., Chesterfield—
For Kimbolton-road mains..... £305 0 0
For Goldington-road mains.... 755 2 6

BEDWAS AND MACHEN.—For laying-out subsidiary sewers, for the U.D.C., at Bedwas, Machen, Maesycwmmer and Trethomas:—
*W. E. Evans, Newport..... £13,673

BEDWORTH.—For sewage works, for the Parish Committee:—
W. H. Penn, Coventry £10,780 11 0
W. H. Rogers, Willenhall 10,293 7 4
Currell, Lewis & Martin, Birmingham 9,282 9 6
John Smith, Bedworth 8,349 1 4
Kelley & Son, Foleshill 8,105 7 4
Andrew Blair, Lyell & Co., Birmingham 7,734 0 0
†G. Percy Trentham & Co., Ltd. 6,919 10 3

BIDDENDEN, KENT.—Alterations and additions to "Corran," for Captain Harold Gaisford, R.N. Mr. A. H. Burtenshaw, F.S.I., F.A.I., architect, Tenterden, Kent:—
R. Weeks & Sons £725 0 0
R. Bridge..... 715 0 0
W. P. Woodgate..... 689 0 0
*W. Elliott 623 12 5

BIDDENHAM (BEDS).—For the erection of a bungalow, for Mr. A. Scott-Cooper. Mr. George P. Allen, architect and surveyor, 79, High-street, Bedford:—
H. Bowler £749 0
S. Foster 688 0
†J. Corby & Son..... 688 0
W. Laughton 682 10

BOURNE.—For the erection of houses, for the U.D.C.:—
*T. A. Scotney, 4 houses £1,579 0
A. H. Scotney, 4 houses 1,540 13

BRADFORD.—For the erection of a new electricity sub-station at Carr Bottom-road, Wibsey, for the Electricity Committee:—
‡J. & P. Obank, Idle.

BRIDLINGTON.—For the erection of 20 "B" type houses on Postele Estate, for the T.C.:—
*C. Sprakes & Sons, Doncaster, per pr. £786 18 4

BRIGHTON.—For supply of materials to the Board of Guardians:—
*Saunders, Brighton:
Bricklayers and plasterers £707 7 0
Carpenters and joiners 358 6 4
Painters and glaziers 747 7 2½
Plumbers 549 11 7

BRODSWORTH.—For erection of house and shop at Highfields. Messrs. Crawshaw & Wilkinson, architects, Barnsley:—
*Banks & Kidger Bros., Doncaster.

CHESTER.—For the erection of 49 cottages on Heath-lane site, for the T.C.:—
*R. Constain & Sons, Ltd..... £19,571 15 6

COWPLEIN.—For erection of mission hall at Cowplein, for the Committee:—
*F. Privett, Portsmouth..... £2,145

CROYDON.—For repairs and painting work at the Borough Hospital, for the B.C.:—
*G. E. Everitt & Sons, Croydon..... £624 10

CROYDON.—For two Cornish hot-water boilers at Central Baths, for the B.C.:—
*Ransomes, Sons & Jefferies, Ltd... £336 10

CROYDON.—For erection of motor van shed at Factory-lane, for the B.C.:—
*R. Mansell, Croydon..... £348

DURHAM.—For making up certain streets at Ushaw Moor, for the R.D.C.:—
*D. F. Hobbs, Stockton..... £2,260 11 6

GLASGOW.—For erection of convenience at Kirkpatrick-street, for the T.C.:—
*R. Murdoch & Son—*Construction work* £1,255
*H. Tweddle & Son—*Sanitary fittings*.. 165

GLASGOW.—For asphalte paving in Green-street, Govan, for the T.C.:—
*French Asphalte Co.—10s. 6d. per sq. yd. for concrete foundation, and 16s. 4d. for asphalte.

GRAVESEND.—For erection of additional accommodation at the hospital. Mr. E. J. Bennett, hon. architect, 191, Parrock-street, Gravesend. Quantities by Mr. W. H. Smith, architect, Maidstone:—
Lingham & Etherington, Gravesend £1,460 0
J. W. Ellingham, Ltd., Dartford .. 1,386 0
J. M. Dering, Gravesend 1,323 10
W. Blay, Ltd., Dartford 1,195 0
W. H. Archer & Son, Gravesend ... 1,195 0
Wallis & Son, Gravesend 1,179 0
*A. E. Tong, Gravesend 1,076 0

H.M. OFFICE OF WORKS (accepted during August).—*Building Works*: Bethnal Green Housing Scheme—Roads and Paths: Mears Bros., London, S.E. Blackburn Employment Exchange—Decoration: Colson Bros., Oldham. Plumbing: W. H. Law & Co., Blackburn. Carnoustie P.O.—Alterations, &c.: J. & R. W. Sievwright, Arbroath. Houses of Parliament—Redrainage: Dent & Hellyer, Ltd., London, W.C. Marton Telephone Exchange—Plastering: Austin & Gibson, Middlesbrough. Plumbing: T. B. Watson & Son, Ltd., Middlesbrough. Mayfair, P.O. Stores—Erection of Hut, &c.: W. Walkerdine, Ltd., London, W. Nottingham, Castle Boulevard Employment Exchange—Alterations, &c.: G. A. Pillatt & Son, Nottingham. Owlerton Telephone Exchange, Sheffield—Erection: Thomas Wilkinson & Sons (Builders), Ltd, Sheffield. Rampton State Institution—Erection of Cottages, &c.: Bernard Pumfrey, Ltd., Gainsborough. Royal College of Art, South Kensington—Renewal of Vertical Lights, &c.: Williams & Williams, Ltd., London, W.C. Builders' Work in connection: A. Roberts & Co., Ltd., London, W. Royal Mint—Demolition Work: Arthur Vigor, Ltd. London, S.W. Sheffield Central Telephone Exchange—Stonework: The Manchester Stone & Slate Co., Ltd., Manchester. Stanningley Telephone Exchange, Leeds—Erection: Arthur Mitchell, Ltd., Leeds. Weston-super-Mare P.O.—Roof Flats and Asphalte: Permanite, Ltd., London, E. Steelwork: A. D. Dawnay & Sons, Ltd., London, S.W. Woolwich Telephone Exchange—Plumbing: W. H. Earley, London, S.W.

Engineering Services: Birmingham G.P.O. Factory—Fuel Economisers: E. Green & Son, Ltd., Wakefield. Cornwall House, S.E.—Heating: The Thames Bank (Blackfriars) Iron Co., Ltd., London, S.E. Harrow, H.M. Stationery Office—Heating: H. J. Cash & Co., Ltd., London, S.W. New Public Offices, Parliament-street—Covering h.w. Mains: Sutcliffe Bros. & Bryce, Ltd., London, E. Southampton—Engineering Labour: The Southampton Electrical Engineering Co., Southampton. Threadneedle-street P.O.—Steel Sashes and Lantern Lights: George Wragge, Ltd., Salford.

Painting: Edwards Construction Co., Ltd., London, S.E.; J. Scott Fenn, London, S.E.; W. H. Gaze & Sons, Ltd., Kingston-on-Thames; M. Greenwood & Son, Ltd., London, W.; Thomas H. Jones, South Farnborough; Arthur Vigor, Ltd, London, S.W.

Miscellaneous: Buckingham Palace—Gilders' Work: Trollope & Colls, Ltd., S.W.

HAILSHAM.—For erection of bathroom at Poor Law Infirmary and conversion of storeroom into a bathroom, for the B.G. Mr. J. W. Wilton, Engineer, Hailsham:—
Gosden & Lambert, Hailsham .. £202 6 9
Ringmer Building Works, Ltd., Lewes 161 10 0
†Exors. T. Rich, Hailsham 157 0 0
Engineer's estimate 155 10 0

HEMSWORTH.—Erection of 10 houses, for the U.D.C.:—
*Jennings & Sons, Hemsworth..... £3,521

HOLME-NEXT-SEA, NORFOLK.—For erection of a garage adjoining "Brockley Cottage," for the Rev. C. F. Farrar, M.A. Mr. George P. Allen, architect and surveyor, 79, High-street, Bedford:—
*F. Southgate, Hunstanton..... £104 18

LEEDS.—For the erection of a house and fish shop at Middleton, near Leeds, for Mr. Castelow:—
*John Ferguson & Sons, Ltd., Leeds.

LEEDS.—For the erection of new premises in Ventnor-street, for Messrs. J. H. Bean & Co., hardware merchants:—
*Wm. Airey & Sons, Leeds.

LONDON.—For the erection of a garage for electric vehicles, for the Hackney B.C.:—
Runham Brown Bros..... £553 11 3
W. Silk & Sons, Ltd. 515 0 0
George Bell & Sons, Ltd. 511 18 6
W. H. T. Kelland & Sons, Ltd... 498 0 0
Henry Boot & Sons, Ltd..... 495 0 0
F. & G. Foster & Co. 471 0 0
L. H. & R. Roberts 468 0 0
Wm. Shurmur & Sons, Ltd..... 434 7 0
*The London & County Public Works, Ltd. 420 11 10

LONDON.—For repair and decorative work to the "Galleons" Hotel, Royal Albert Docks, for Truman, Hanbury, Buxton & Co., Ltd. Mr. William Gilbert, M.S.A., architect, Broad-street-avenue, E.C.2:—
Schooley & Son..... £878 0 0
Dearing & Co. 808 0 0
W. Harper & Sons..... 699 0 0
W. Harris 598 0 0
*Vigor & Co. 556 10 0

LONDON.—For repair and decorative work to the Central Buffet, Royal Albert Docks, for Truman, Hanbury, Buxton & Co., Ltd. Mr. William Gilbert, M.S.A., architect, Broad-street-avenue, E.C.2:—
E. Beasley £850
Johnson Bros. 700
Dearing & Co. 666
Vigor & Co. 645
*W. Harper & Sons 617

LONDON.—For repair and decorative work to the "Connaught" Tavern, Royal Albert Docks, for Truman, Hanbury, Buxton & Co., Ltd. Mr. William Gilbert, M.S.A., architect, Broad-street-avenue, E.C.2:—
Schooley & Son..... £797
Vigor & Co. 647
Johnson Bros. 637
E. Beasley 630
*W. Harper & Sons 605

LONDON.—For conversion of building into convenience at Stockwell-green stables, for the Lambeth B.C.:—
*T. Brown & Son..... £136

LONDON.—For exterior painting at stables, Stockwell-green, for the Lambeth B.C.:—
*A. W. Pelling..... £196 19

LONDON.—For the re-construction of various roads with bituminous material, for the Westminster B.C.:—

Road.	Name of Contractor and Description of Material.	Price per super yd.	Maintenance.
Roehampton-lane. (Upper Richmond-road to Clarence-lane). *Class I.*			
Streatham Common North. (Streatham High-road to Valley-road). *Class I.*	*Highways Construction, Ltd. (3½ in. Bituminous Paving—two coats)	11/-	7 years free, and 6d. per super yard per annum for further 3 years.
Merton-road. (West Hill to Buckhold-road). *Unclassified.*			
Merton-road. (Buckhold-road to Borough Boundary) (Portion only). *Class I.*			
Merton-road. (Buckhold-road to Borough Boundary) (Remaining Portion). *Class I.*	Limmer & Trinidad Lake Asphalt Co. (3½ in. Trinidad Asphalt—two coats)	12/-	7 years free, and 6d. per super yard per annum for further 3 years.
Silverthorne-road. *Class II*			
North-street. *Class II.*			
Old Town. (North-street to The Pavement.) *Class II.*			
The Pavement. (Old Town to Woodpaving). *Class II.*	*Constable, Hart & Co. (3 in. "Aztecmac")	9/10	7 years free, and 5d. per super yard per annum for further 3 years.
Nightingale-lane. (Clapham Common South Side to Borough Boundary). *Class II.*			
Old Portsmouth-road. (Reservoir to Kingston-road). *Class I.*			
Queens-ride. *Class II.*			
Trinity-road. (Windmill-road to Burntwood-lane). *Class II.*			
Burntwood-lane. (Garratt-lane to Swaby-road). *Class II.*			
(Playing Fields to Burntwood Lodge). *Class II.*			
(Lyford to Trinity-road). *Class II.*	*Whitehall Asphalt & Engineering Co., Ltd. (2 in. "Duraphalt" Asphalt Carpeting)	9/2	7 years free and 4½d. per super yard per annum for further 3 years.
Tooting Bec Gardens. (Tooting Bec road to Mitcham-lane). *Class II.*			
Lower Richmond-road. (Woodpaving to Borough Boundary). *Unclassified.*			
Frogmore. *Unclassified.*			
Wandsworth Plain. *Unclassified.*			
Chelverton-road. (Part). *Unclassified.*			

LONDON.—For external painting work at 49 to 127, Swaby-road, for the Wandsworth B.C. :—

*H. Somerford & Son	£124

LONDON.—For cleaning down and repointing stonework of the church and chapel at Ladywell Cemetery, for the Lewisham B.C. :—

James Watt, Catford	£370 0 0
W. E. Burch, Lewisham	196 0 0
A. T. Peyton, Lewisham	184 17 6
*C. Cutler, Hither Green	164 0 0

LONDON.—For supply of 3,000 ft. run of 12 in. by 8 in. granite kerb, to the Lewisham B.C. :—

	Price per ft. run. s. d.
Brookes, Ltd.	3 2½
Brotherton-Ratcliffe & Co., Ltd.	3 2
A. & F. Manuelle, Ltd.	3 1½
*Wettern Bros., Ltd.	3 1½

MONKTON COMBE.—For erection of house. Mr A. J. Pictor, architect, Bath :—

Coles Bros., Ltd., Bath	£2,425 0 0
Saunders & Son, Ltd., Cirencester	2,216 10 0
C. Addicott & Son, Weston-super-Mare	2,132 18 4
W. F. Drew, Ltd., Stroud	2,050 0 0
J. Long & Sons, Ltd., Bath	2,049 0 0
G. Mannings & Sons, Ltd., Bath	2,029 15 5
A. Wills & Sons, Ltd., Bath	1,975 0 0
E. Linzey & Sons, Trowbridge	1,894 12 0
E. G. Padfield & Co., Shepton Mallet	1,890 0 0
*C. T. Tucker, Bristol	1,750 0 0

NUNEATON.—For erection of 40 houses on the Attleborough Housing Estate, for the B.C. Mr. R. C. Moon, Borough Surveyor Municipal Offices, Nuneaton :—

Wm. Walkeraine, Ltd., Derby	£19 712 10 7
Geo. Cooper & Son, Nuneaton	18,783 18 8
W. A. Taberer & Co., Nuneaton	17,868 15 11
G. E. & W. Wincott, Nuneaton	17,681 11 8
Meigh & Green, Nuneaton	17,391 14 4
*E. O. C. Howells, Coventry	16,115 0 0

PRESTON.—For additions and alterations to Grammar School, Moor Park, for the T.C. Borough Surveyor, Town Hall, Preston :—

*Geo. Hill & Sons, Ltd., Preston	£7,600

ROCHDALE.—For asphalte lining to gutters of new mill, for Wicken Hall Calico Bleachers' Association :—

*Thos. Faldo, Manchester.	

SCARCROFT.—For structural alterations and additions to Oaklands, for J. T. G. Mylechrest :—

‡J. T. Wright & Sons, Leeds	£9,000

SOUTHAMPTON.—For addition of new western and eastern blocks to the Free Eye Hospital. Messrs. Gutteridge & Gutteridge, architects, 9, Portland-street, Southampton :—

*J. Bates & Son, Botley	£5,583

STOCKTON.—For an additional 100 houses on the Norton Blue House Estate, for the T.C. A subsidy of £90 will be paid in respect of each house :—

*H. M. Nowell	£35,500

SWANSEA.—For supply and erection of steelwork in connection with the installation of new boilers at the electricity station, for the T.C. :—

*South Wales Structural Co.	£925

SWANSEA.—For the erection of 14 non-parlour type houses at Llanerch, for the T.C. :—

*Samuel & Evans, Swansea	£6,246 14 4

WEM.—For resurfacing 800 yds. of road in tarred slag, for the U.D.C. Mr. E. Hill, Surveyor, Town Hall, Wem :—

Celriog Granite Co., Shrewsbury (*a*)	£266 0 0
Tarmac, Ltd., Wolverhampton	234 0 0
Partington Steel & Iron Co., Ltd., Irlam	225 0 0
Tarslag, Ltd., Stockton-on-Tees	216 13 4
W. Shepherd & Sons, Ltd., Milkstone	214 0 0
*W. Jenkinson, Springfield	194 0 0

(*a*) Tendered for granite tar-macadam.

WILLESDEN.—For making-up Clare-road, for the B.C. :—

*W. Walkerdine, Ltd.	£750

WILLESDEN.—For cleaning and painting at Municipal Hospital, for the B.C. :—

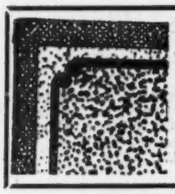
*W. Stamper	£572

WILLESDEN.—Erection of mess room and toolhouse at Cobbold-road Cemetery, for the B.C. :—

*I. C. Tennent & Co.	£258

WILLESDEN.—For replacing old and worn tar paving on footpaths with artificial stone, for the B.C. :—

*E. Matthews & Co., 8s. 9d. per yd., super.
*C. Carter, 8s. 10½d. per yd., super.



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